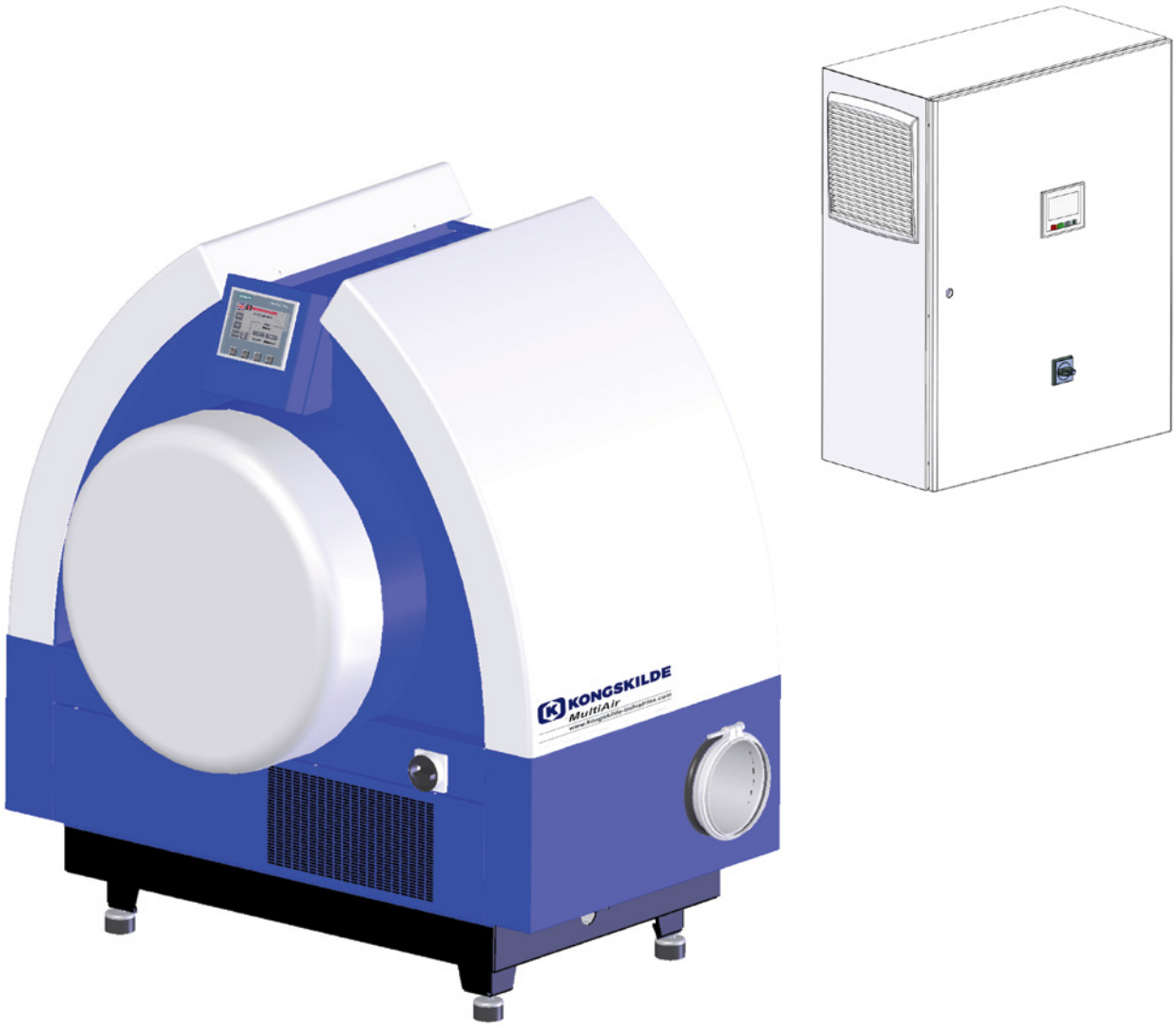
MultiAir FC / FCE 2000

High pressure blower



Operator´s manual

KONGSKILDE

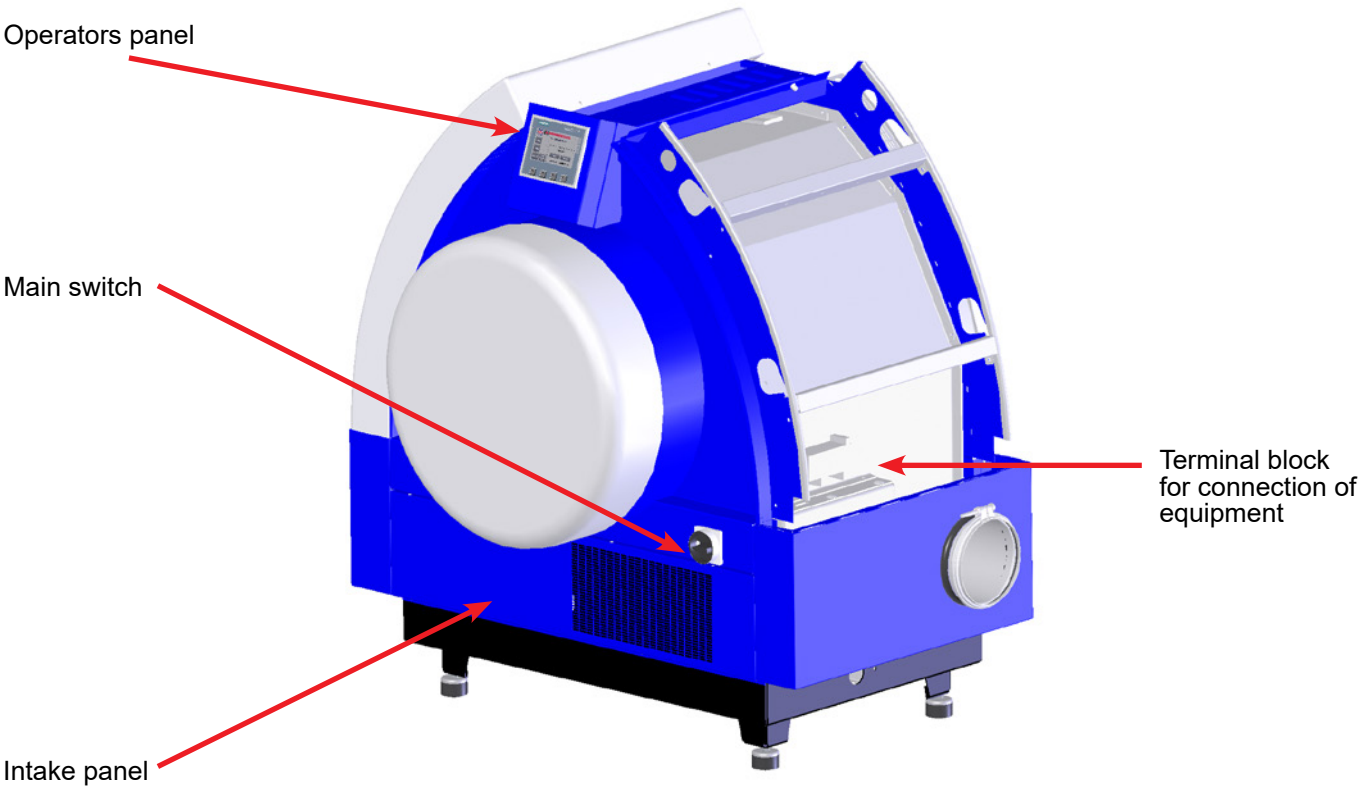
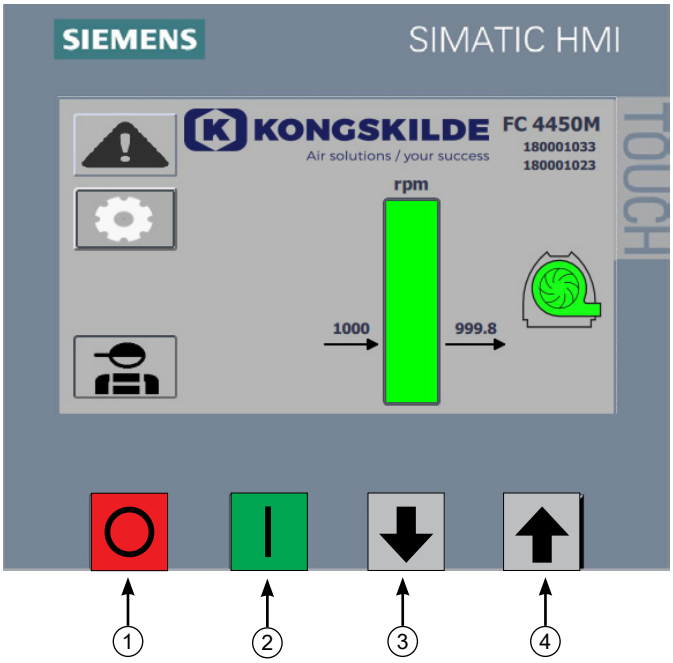


Illustration 1



1. **Stop**
2. **Start**
3. **Setpoint down (decrease performance)**
4. **Setpoint up (increase performance)**

Illustration 2

EN

This user manual applies to the Kongskilde MultiAir blower model FC/FCE 2000 series.

Description:

The Kongskilde MultiAir blower is designed for use with pneumatic conveying systems, but is also suitable for other industrial pneumatic solutions.

Materials may not be transported through the MultiAir blower. Air volumes containing corrosive, adhesive or dusty particles may not pass through the MultiAir blower. For the S models, the intake temperature must not exceed 70°C . For the T models, the intake temperature (ambient temperature) may not exceed 50°C at the intake of the blower.

Warning notes:

Make sure all guards are in place and properly secured during operation.
Always disconnect power to the blower prior to repair and maintenance. The main switch must be switched off and locked to ensure the blower cannot be started by mistake.
Never put your hand into the blower intake or outlet while the blower is running.
The blower should be installed in an accessible location for maintenance and repair.
The working area around the blower should be clear and trip free.
Make sure to have adequate lighting when working on the blower.
To avoid any unintentional contact with the impeller, pipes of minimum 800 mm length, with a diameter of maximum Ø200 mm must be installed onto the intake and outlet connections (intake connection only relevant for the MultiAir blower type S).
These pipes must be installed with bolt clamps, where tools are necessary for dismantling.
In case it is not possible to use minimum 800 mm tubes, it must be ensured that within minimum 800 mm from the blower are bolt clamps used, where tools are necessary for dismantling.
The reason for this is, that according to EU-directive 2006/42/EC (Machinery Directive), it is not allowed for any unauthorized personnel to gain access to rotating parts. In case quick clamps are used, unauthorized personnel could dismantle the pipes, and gain access to rotating parts.

The blower speed is fully adjustable and controlled from the operator´s panel. In order not to overload the rotor and motor, the blower speed can not be set higher than what the blower is designed for. Changing the electrical equipment in order to increase the maximum blower speed is not allowed.

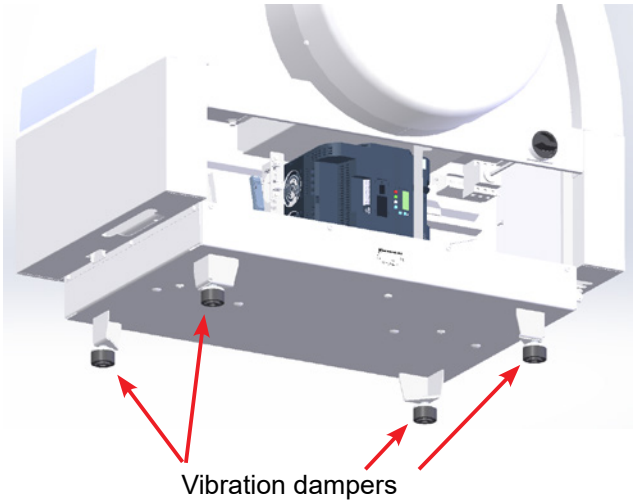
Use eye protection when working close to the air outlet of the blower. In case of small particles in the conveyed material, these might be blown from the air outlet of the blower, causing eye damage.
If any abnormal vibrations or noise are observed, the blower must be stopped immediately, and qualified assistance must be called.

Mounting:

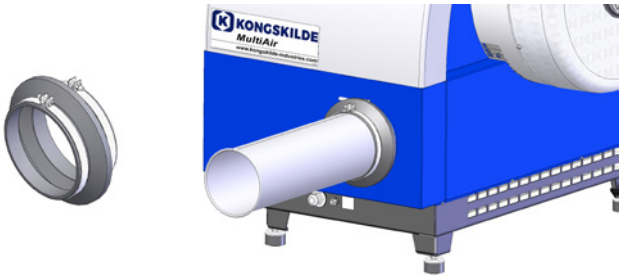
The **MultiAir FC** blower is delivered from the factory ready to use and needs only to be connected to the power supply and pipes on the blower intake / outlet.
The **MultiAir FCE** blower is delivered from the factory with preinstalled control cabinet, and needs only to be connected to the power supply and pipes on the blower intake / outlet.
If the blower is to be moved, a forklift or similar should be used, which lifts underneath the bottom frame. The forks must be long enough to lift both sides of the bottom frame.
Do not attach the blower to the base or building parts, otherwise the vibration dampers under the blower will not work.

NOTE - If the blower is subjected to vibrations from the ground or piping, there is a risk that the blower's control system will be damaged. Therefore pay special attention to the following:
It is important that the blower is mounted on a vibration-free surface and that no vibrations are transmitted to the blower via the connected pipe system.

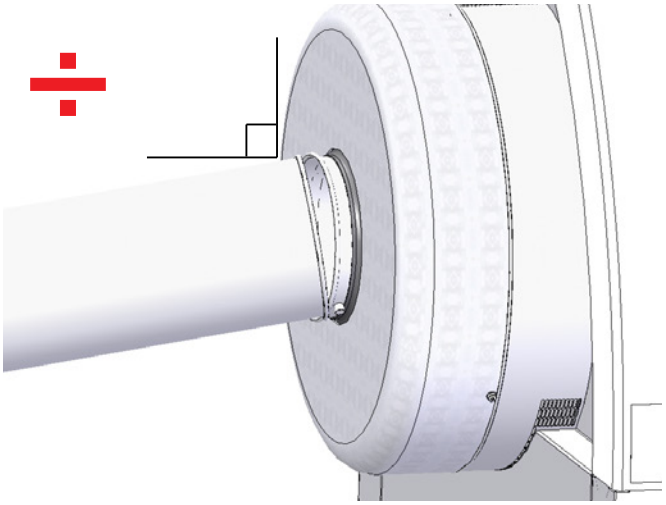
The blower comes with vibration dampers designed to prevent the blower's vibrations from reaching the ground.
If there is a risk of the blower being subjected to vibrations from the ground, a different type of vibration dampers can be mounted on the blower than the original ones. The vibration dampers will absorb oscillations in the range of 0 - 10Hz and are designed to eliminate external vibrations.
These vibration dampers can be purchased under part no. 123 022 036. The set contains 4 dampers as well as Ø160 and Ø200 flexible transitions, see below.



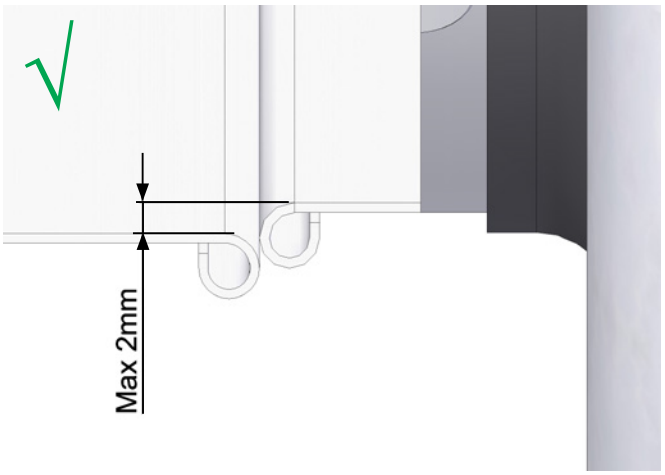
If the blower is subjected to vibrations from the pipeline, there is also a risk that the blower's control system will be damaged. These vibrations can propagate through the blower housing into the control unit. Flexible transitions must therefore be fitted. Kongskilde offers Ø160 transition incl. clamps, under part no. 122 000 026 (for the blower outlet).



It is important that the pipe system is supported or suspended properly. Furthermore, piping should be supported close to the blower, and no twist from the connected pipeline must be transferred to the blower. **If the piping is not supported properly, or if any twist is transferred, there is a great risk that the blower control system will be damaged!**

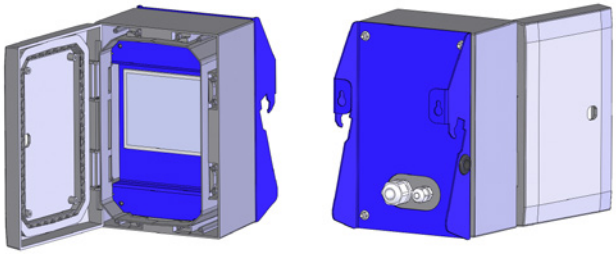


The pipes on the blower's inlet and outlet side must be set up, so that the pipe ends lie parallel to each other and are centered on one another, with a max. deviation of 2 mm before mounting the bolt clamp.



The MultiAir blower is designed so that it can be installed outdoors.
However, the control cabinet of the MultiAir FCE models must be protected against precipitation and sunlight.

The operators panel must be installed indoors or protected from water and UV rays, as precipitation and sunlight can damage the panel.
Kongskilde offers an enclosure for outdoor installation of the operator panel under part no.: 123 022 262.



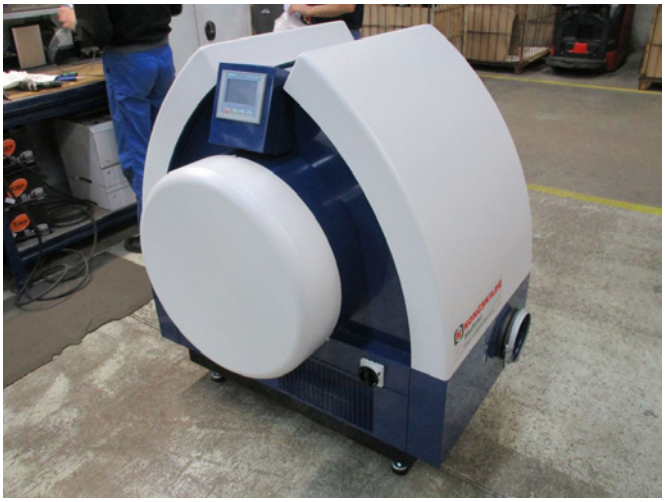
The operator panel is included in the delivery with the blower and can either be hooked onto the blowers end (see photo below), or mounted elsewhere. The panel is equipped with 10m. cable, this can be replaced to max. 100m. if necessary. Kongskilde can supply an extension cable set of respectively 50m and 100m, both contain data cable and 24V supply cable, and both are approved for outdoor use.

Part no.	Type
123 022 311	50 meter extension cable (data + 24V)
123 022 312	100 meter extension cable (data + 24V)

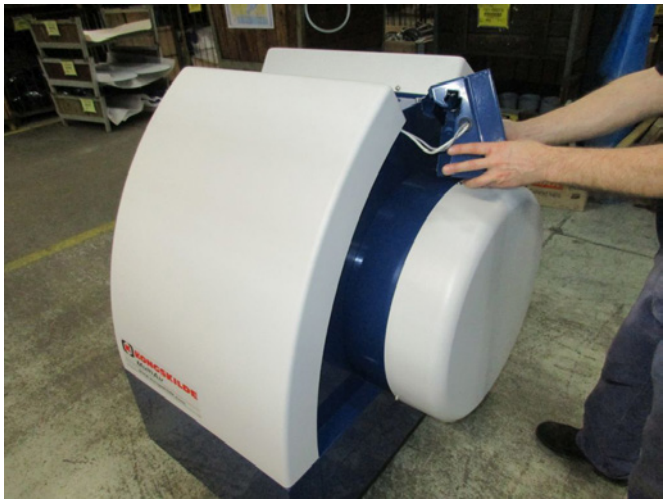
Use a standard CAT6 data cable and 24V supply cable for outdoor installation, if necessary. Use cable ferrules for the 24V cable, and do not extend the cables as joints may impair reliability.

If the blower is delivered with a flow- or pressure control, the pressure transmitter must be mounted on a solid surface without any vibration.

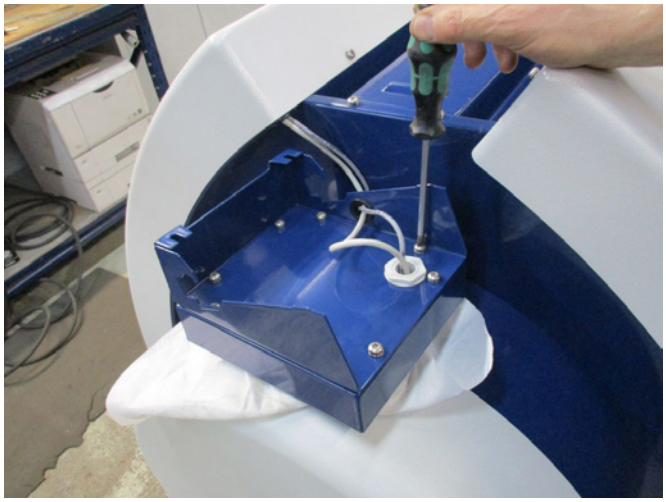
The operators panel is enclosed and connected to the blower at delivery, and hooked onto the blower´s end plate as indicated:



The operators panel can be moved onto other locations if desired. This is done as follows:

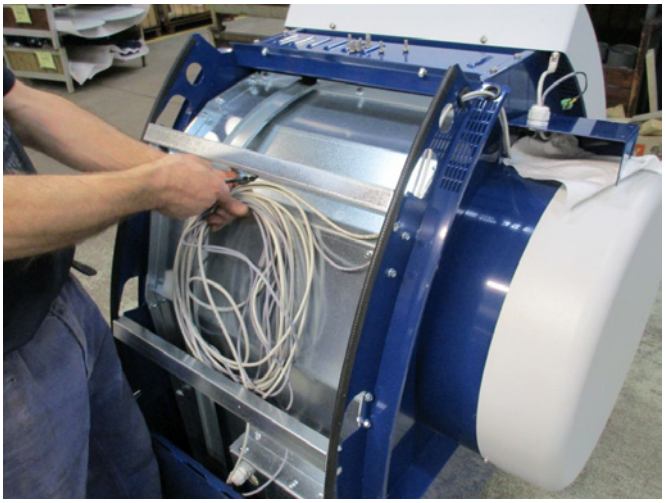


1 - The operator´s panel is unhooked and laid onto the blowers motor. Put a cloth or similar under the panel to avoid scratches on the display.



2 - The 8 pcs. M6 screws on the back side of the panel´s bracket are removed.

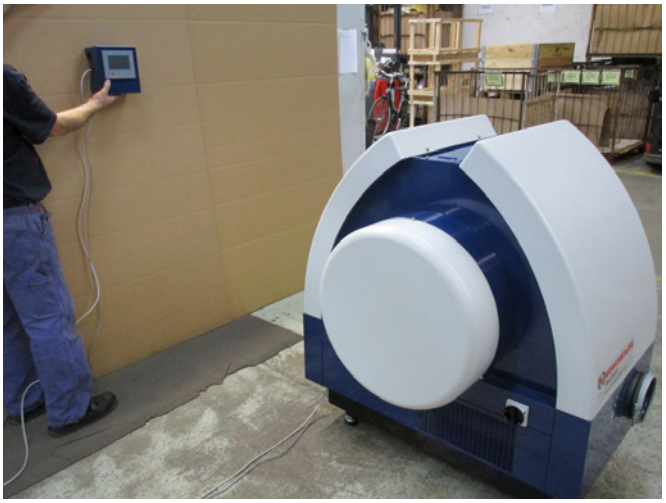
3 - The panel is turned, the two wires disconnected, and the panel put aside.



4 - The blower cover to the left of the operators panel is removed (attached with two M6 screws), and the cable tie is cut.

5 - The cable relief in the panel´s bracket is loosened, the wires are pulled out of the bracket and out of both holes in the blower´s end plate, and guided down the left side of the blower.

6 - Both wires are led through an M25 cable relief (not included), that must be fitted at the front or back of the blowers base frame, taking into account the operator panel's new location.



7 - The wires are guided through the panel bracket, the wires are connected, the relief is tightened, and the 8 screws are reinserted. The panel can now be hooked onto a wall or the like by means of the two slots on the back. At delivery, the operator´s panel is equipped with 10m. wire, this can be extended to max. 100m. if necessary.

Connection of pressure- or flow control unit (accessory)

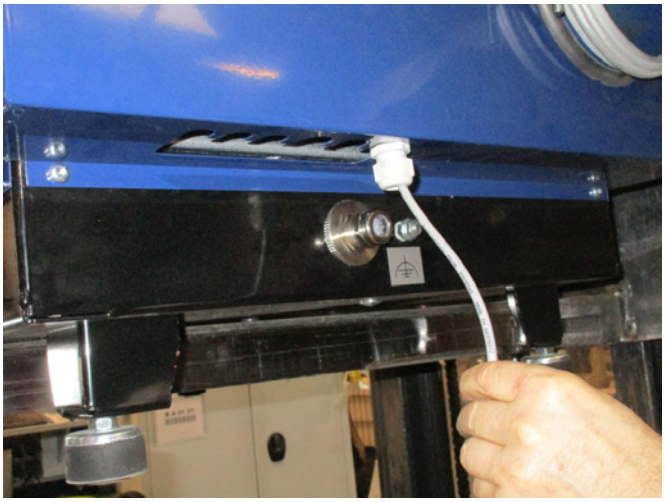
In case you wish to use the blower´s built in PID control to maintain a fixed pressure or volume flow from the blower, a pressure- or flow control unit must be connected to the blower´s control unit.
Kongskilde recommends to utilize Kongskildes standard pressure- or flow control device for automatic operation.
In both the pressure- and flow control device package, an external differential pressure transmitter is used, in addition to either an pipe installed aperture or pipe installed pressure outlet. Both packages also includes hose and fittings.
IMPORTANT: The pressure transmitter must be mounted on firm ground without vibrations, ie. not onto the pipe system or the blower. Furthermore, the pressure outlet / aperture must be mounted at a distance of at least 20 x pipe diameter from the blower, otherwise the operators panel will not display the correct values for pressure and flow.

The pressure- or flow control packages can be ordered under the part no´s:

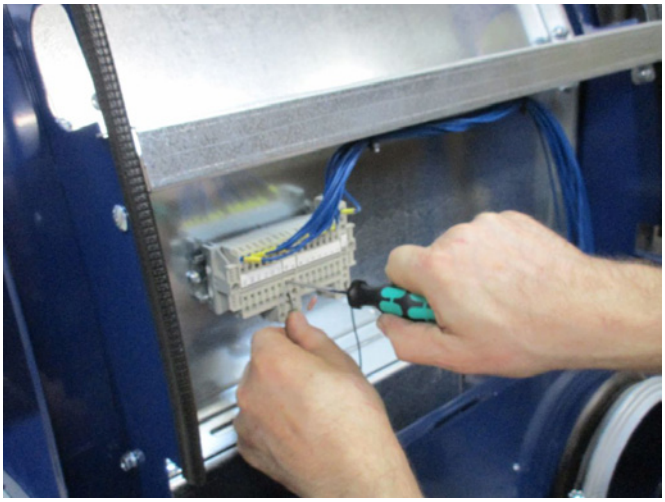
Part no.	Type
123 021 049	Pressure control unit
123 030 248	Flow control unit

When connecting pressure- or flow control units, the wires from the differential pressure transmitter must be connected to the blower´s terminal block (for the FC models internally in the blower, for the FCE models in the control cabinet) as follows:

1 - The right blower cover is removed (seen from the motor side).



2- Guide the differential pressure transmitter´s wire through an M20 cable relief (not supplied), and attach the relief in the base frame.



3 - The terminals are released with a small screwdriver, and the wires installed according to the diagram:

- terminal 1 (+24VDC) to terminal 2 of the transmitter
- terminal 10 (4-20mA signal) to the terminal 1 of the transmitter
- possibly a connection from terminal 2 (0VDC) to the transmitter should be established, in case this is needed for the transmitter (not required at Kongs kildes flow- or pressure transmitter).

4 - The cable relief is tightened and the blower cower refitted.

5 - The differential pressure transmitter is mounted onto a vibration-free surface.

6 - The transmitter lid is removed, wires are connected according to the diagram, and the lid reinstalled.

7 - The hoses from the aperture (at flow control) or pressure outlet (at pressure control) are connected according to the illustration. 4 m of clear hose is included, this can be extended if needed.

Make sure that the blower is installed so that it is secured against falls and tipping over.
If the blower is to be moved, a forklift or similar device should be used, which lifts from underneath the blower base frame. The forks must be long enough to lift both sides of the blower.
Ensure that there is a sufficient supply of fresh air to the room from which the blower takes in air.
Please ensure that the blower is installed so that there is easy access for operation and maintenance.
The blower must be installed on a stable surface which is levelled and horizontal. Adjust the machine shoes under the blower so that they support uniformly on the surface. It is not necessary to secure the blower to the surface.

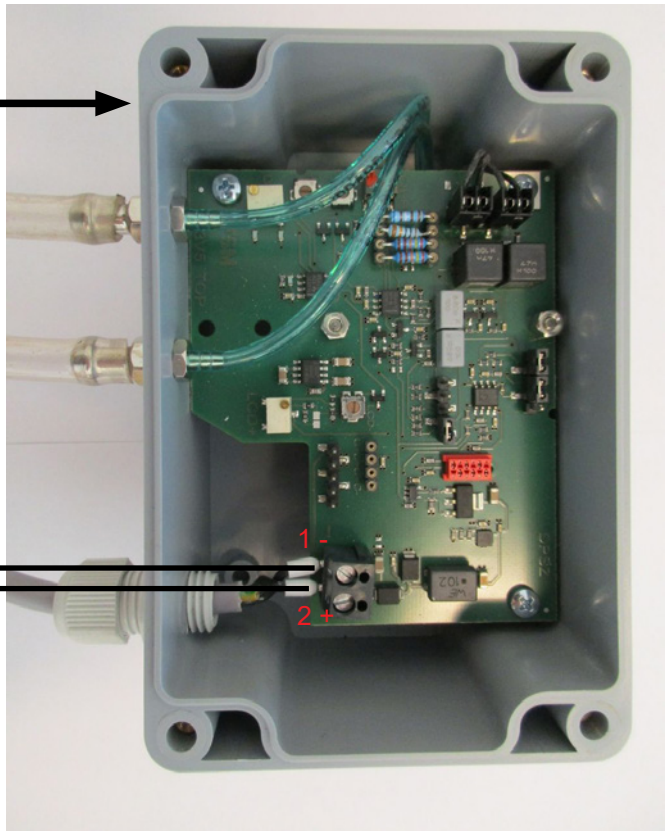
The MultiAir FC/FCE blower is rated for ambient temperature of -10°C - 50°C. If the temperature exceeds 50°C, the blowers lifetime could be reduced.

NB - after connection of power to the blower, a delay of up to half a minute may occur, before the operator´s panel is lit.

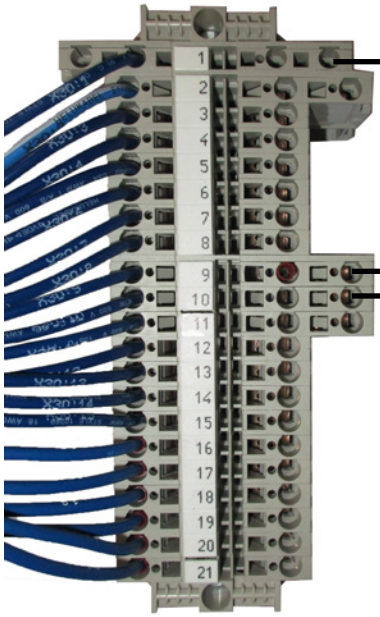
Installation of the pipes:
The conveying performance of a pneumatic conveying system is highly dependent on the layout of the piping. It is therefore important to follow the layout, that has been designed for the pipe system, for the installation in question. Bear in mind that the joints of the pipe system must be tight, as leaks will reduce the conveying performance.

Connection of pressure/vacuum- or flow control

Differential pressure transmitter for pressure/vacuum- or flow control



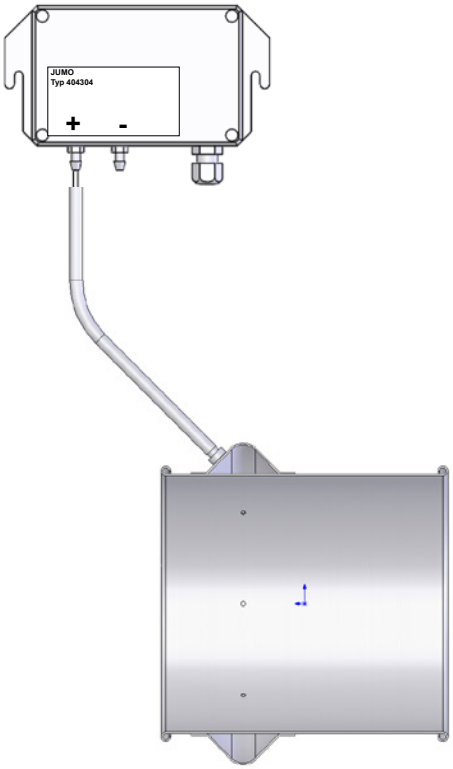
Terminal block on the blower´s left side (seen from intake side)



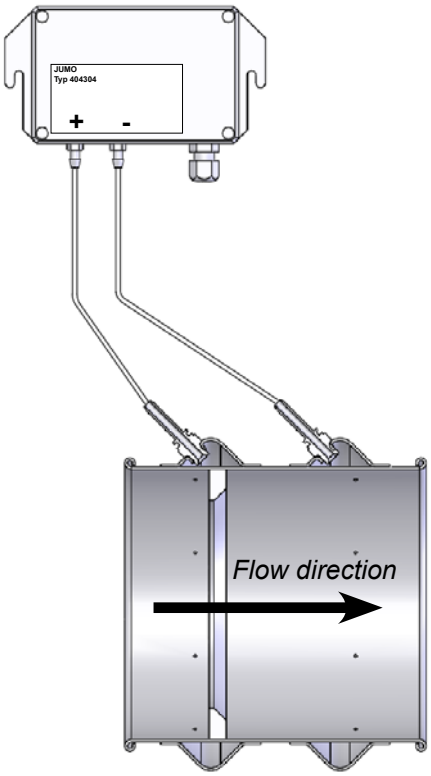
+24 V DC

500 Ω

Connection of hose between pressure transmitter and pressure outlet (for pressure regulation)



Connection of hose between pressure transmitter and aperture (for flow regulation)



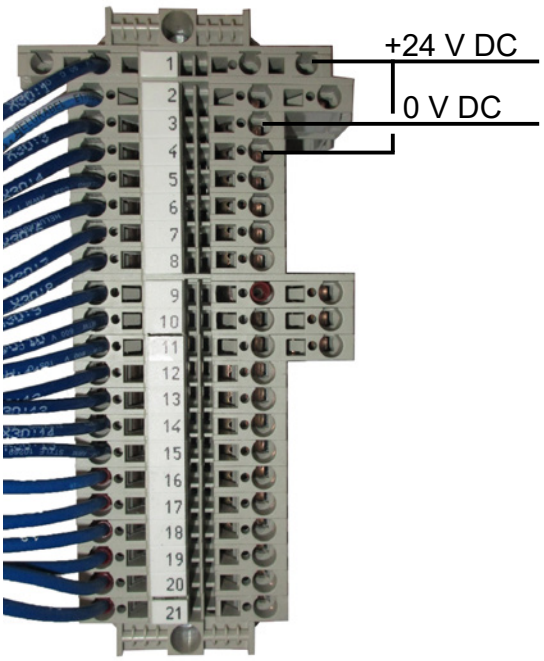
An external start / stop switch and / or control box for external motor can be ordered from Kongskilde under the following part no´s:

Part no	Type
100 503 357	External start/stop contact
100 503 338	External motor control 0,55kW (at 400V) 1,3-1,7A
100 503 345	External motor control 0,75kW (at 400V)1,7-2,3A
100 503 341	External motor control 1,1kW (at 400V) 2,3-3,1A
100 503 342	External motor control 1,5kW (at 400V) 3,1-4,2A
100 503 339	External motor control 2,2kW (at 400V) 4,2-5,7A
100 503 343	External motor control 3kW (at 400V) 5,7-7,6A
100 503 340	External motor control 4kW (at 400V) 7,6-10A

The start / stop switch and the control boxes are all specified 3x200V-600V 50/60Hz.

Start / stop contact

The external start / stop switch is connected in terminal block X30 between terminal 1 (+ 24VDC) and 3 (Digital Input 0), and a loop is installed between terminals 1 and 4.



On the operator´s panel should:
Digital Input 0 be set to *External start signal - hold* and
Digital Input 1 be set to *External stop NC*.

External motor control (MultiAir FC/FCE)

Part no.	Type
100 503 429	External motor control 0,37kW (at 400V) 1,0-1,3A
100 503 338	External motor control 0,55kW (at 400V) 1,3-1,7A
100 503 345	External motor control 0,75kW (at 400V)1,7-2,3A
100 503 341	External motor control 1,1kW (at 400V) 2,3-3,1A
100 503 342	External motor control 1,5kW (at 400V) 3,1-4,2A
100 503 339	External motor control 2,2kW (at 400V) 4,2-5,7A
100 503 343	External motor control 3kW (at 400V) 5,7-7,6A
100 503 340	External motor control 4kW (at 400V) 7,6-10A

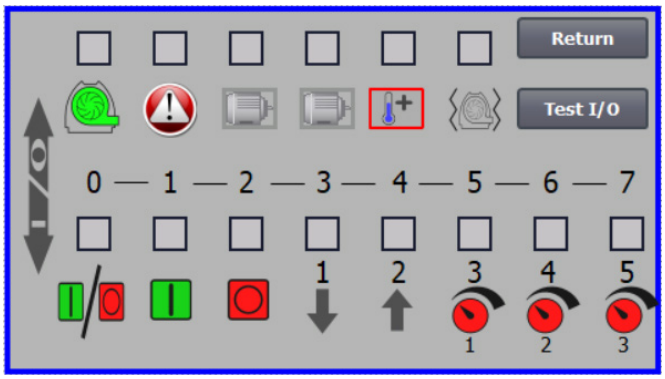
The start / stop switch and the control boxes are all specified 3x200V-600V 50/60Hz. If the motor controls are used at voltages other than 400 - 440V, the power consumption must be compensated.

The external motor control is connected in terminal block X30.
For external motor 1: Terminal 2 (0 VDC) and terminal 15 (Digital output 2)
For external motor 2: Terminal 2 (0 VDC) and terminal 16 (Digital output 3)
Each output in terminal block X30 may be loaded continuously with a maximum of 2A (24VDC), and a maximum of 4 Kongskilde motor controllers per output may be connected.

Furthermore, a possible delay can be configured, see section "Setting up the blower via the operator panel".

The connection below shows connection of external motor 1.

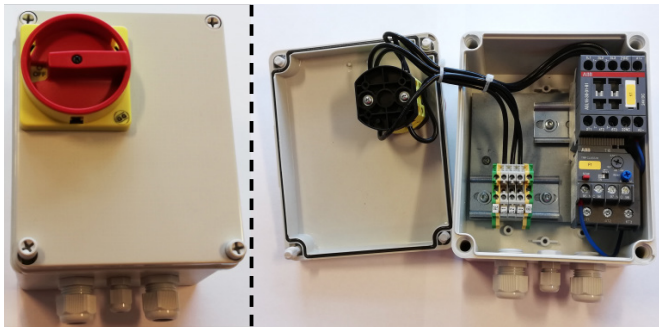
No setup is required on the operator panel. The screen for the blower inputs and outputs looks like this.



The external motor´s rated current is set on the thermal relay's potentiometer. If the external motor is overloaded, the thermal relay will switch off and must be reconnected after the fault has been investigated. Kongskilde recommends that the blue RESET button be set to position M (manual). If the button is placed in position A (automatic), the thermal relay will reconnect automatically and it is therefore not possible to monitor when the switch-off takes place.

The TEST button is operated with a screwdriver at regular intervals, e.g. every six months. After switching off, reconnect with the blue RESET button. If the relay does not trip, it is defective and must be replaced.

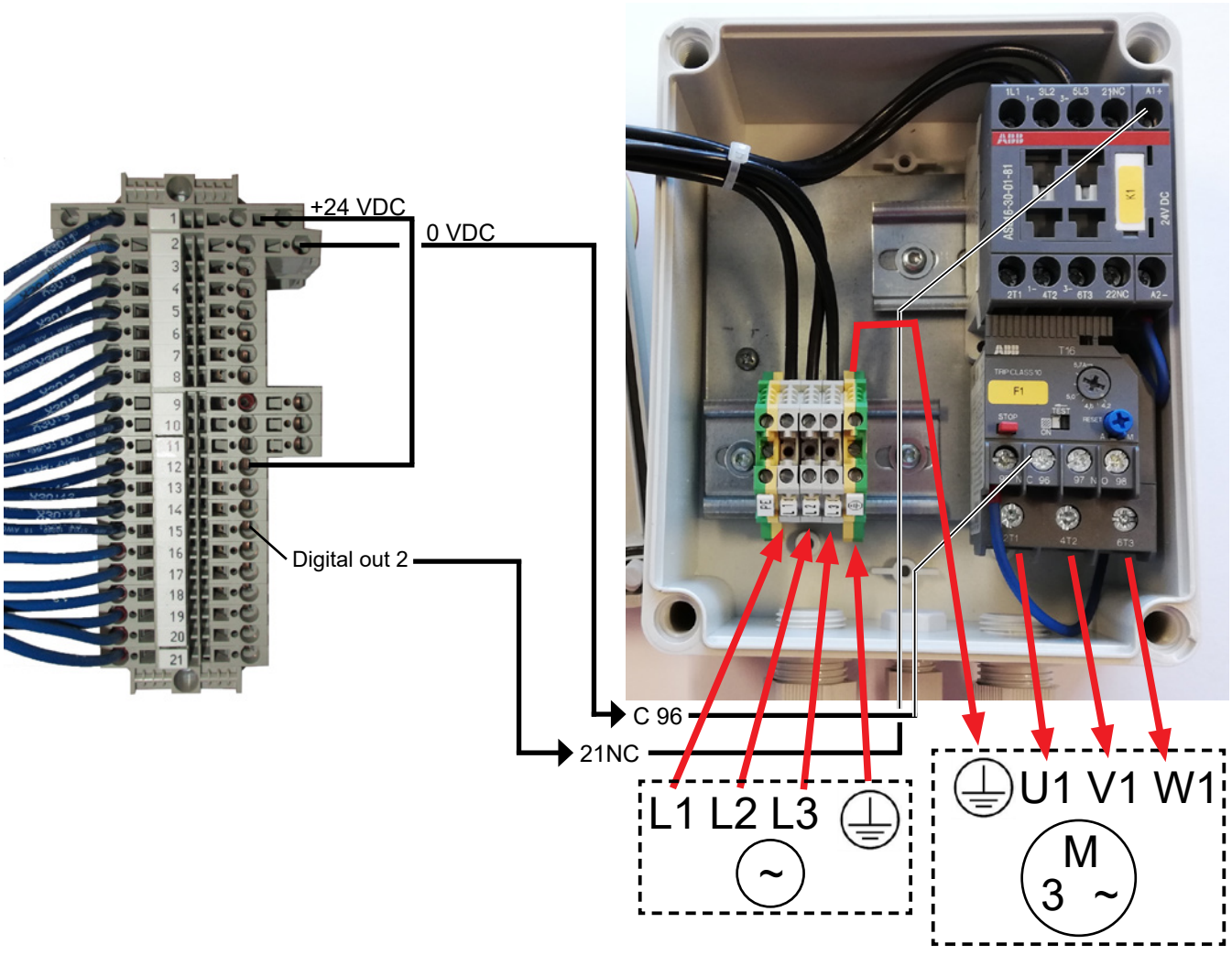
The switch on the cover of the external motor control is a safety switch that must always be switched off before repair and maintenance. The safety switch must be locked so that the external motor, on for example a cutter, cannot be started by mistake.



All equipment must be connected to terminal block X30 in the blower side, and the connected wires must be relieved in the blower bottom frame, to the right of the power supply.

The equipment could for example be:

- Signal transmitters for the different operating points of the blower
- Equipment for error message of the operating mode of the blower



Electrical installation:

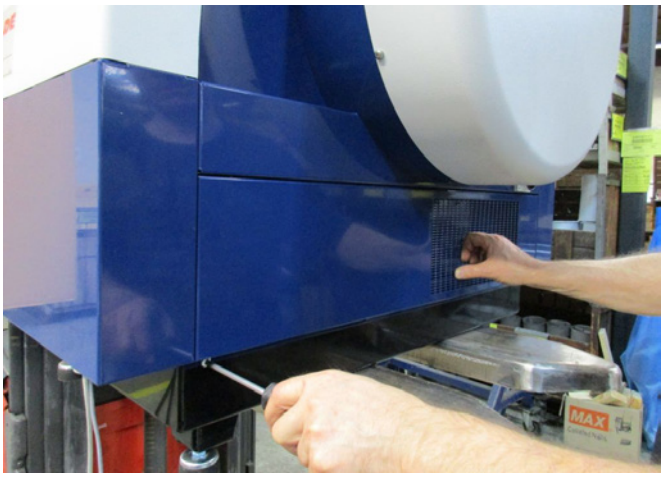
The MultiAir blower is delivered in version for 380 - 480V voltage. If the blower is to be installed in the 200-240V and 480 - 575V voltage range, an external transformer must be installed between the power supply and the blower.
All local factory inspectorate regulations must be complied with.
Check that the on site electricity supply is suitable for the MultiAir blower.
See also the separate instructions for the blower´s electrical equipment, that is supplied the blower.

NB - above the supply cable´s relief and potential equalizing terminal in the base frame, are 6 cutouts for cable reliefs. These can be used for control wires, differential pressure transmitter connection, digital input and output connections, etc.

Important - the blower shall be potential equalized via the terminal to the right of the supply cable´s relief (at the symbol for potential equalizing).

Electrical connection of MultiAir FC

The supply and potential equalizing cables are connected as follows:

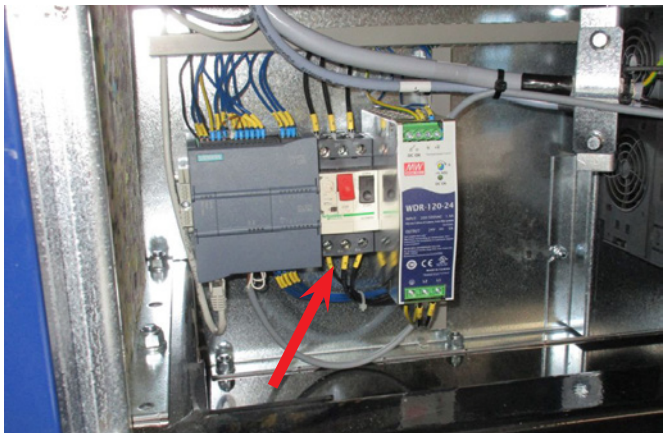


1 - Under the blower´s motor is located the intake panel, attached by 4 pcs. M6 screws. These screws are removed, and the panel is drawn down and set aside.

2 - The supply cable is guided through the relief in the base frame of the blower´s right side (seen from the motor side). The potential equalization cable is mounted to the right of supply cable and tightened.

3 - The supply cable is guided into the main switch and connected according to the marking. Ferrules must be used. The cable relief in the base frame is tightened, and the intake panel reattached by means of the 4 screws.

Between the PLC and its 24V power supply is a circuit breaker, protecting PLC and operator´s panel. This is delivered ON, but may switch OFF in case of overload.

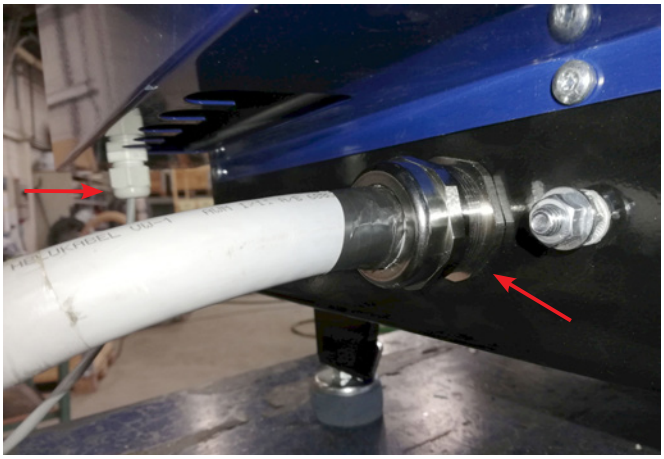


(Shown here with the intake panel removed).

Electrical connection of MultiAir FCE

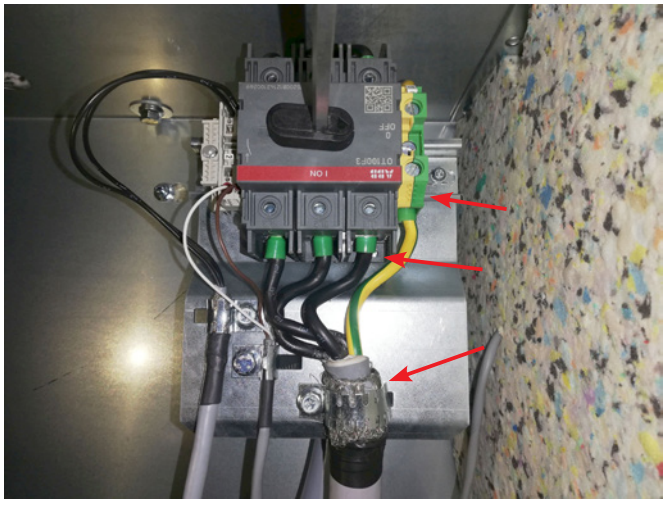
The external control cabinet is connected to the blower as follows:

1 - Under the blower´s motor is located the intake panel, attached by 4 pcs. M6 screws. These screws are removed, and the panel is drawn down and set aside.



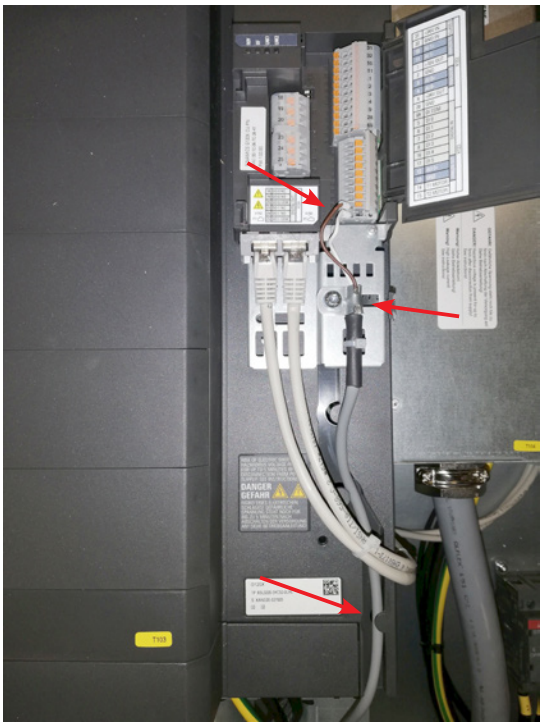
2 - The supply cable and the ptc sensor wires from the control cabinet are guided through the reliefs at the bottom frame of the blower.

3 - The wires for the ptc sensors are routed as shown, and connected in the terminal block. Also secure the wires with the cable relief, ensuring shield braid contact.

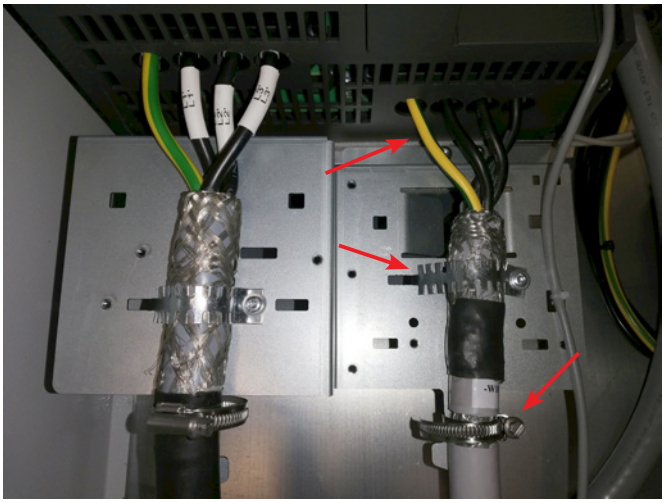


4 - The supply cable is connected to the main switch and earth terminal. Secure the cable with the relief, ensuring shield braid contact.
Tighten both cable reliefs at the blowers bottom frame, and reinstall the intake panel, and the side covers.

Next, ptc wires and the supply cable are connected in the control cabinet.



5 - The wires for the ptc sensors are guided through the bottom relief and routed as shown, and connected in the terminal block. Also secure the wires with the cable relief, ensuring shield braid contact.



6 - The supply cable (to the right) is routed through the bottom relief and connected to the frequency converter. Secure the cable with the relief, ensuring shield braid contact. Also secure the lower screw strap.

The supply cable for the control cabinet is also routed through the bottom relief and connected to the main switch. Remember to connect the earth terminal with a ring lug connector. If necessary, also install the potential equalizing cable.

Setup of blower prior to operation (via the operator´s panel):

After installation and electrical connection, the blower can be setup to desired mode of operation. This is done on the operator´s panel.

In case fingertip operation problems occur, the eraser at the end of a pencil could be used.

The Settings menu gives access to the setup of the blower. The operation and setup of the blower are protected by 3 levels of users:

1. Operator - is not password protected and will be anyone who has access to the blower.

Operator always has the opportunity to be able to:

a) Change language selection
b) See status

If Tech has given the operator permission, the operator can also:

c) Choose between Local and Remote control of setpoint.

With Local control, the blower can be started and stopped with the operating buttons 1 and 2, and the setpoint could be adjusted with buttons 3 and 4.
If the operator is not allowed to adjust the setpoint, the Local and Remote buttons do not appear.
If Tech has selected Local, the operator can start, stop and adjust the setpoint (on the Local display), but not switch to Remote. If Tech has chosen Remote, the operator can not start, stop or adjust the setpoint, ie. the control buttons are inactive.

2. Tech - is password protected. Tech assigns which the operator's rights to adjust the blower operation. The purpose of Tech is to assign the operator the correct rights. In case the Operator does not have access to adjust the setpoint, it is Tech who does this.

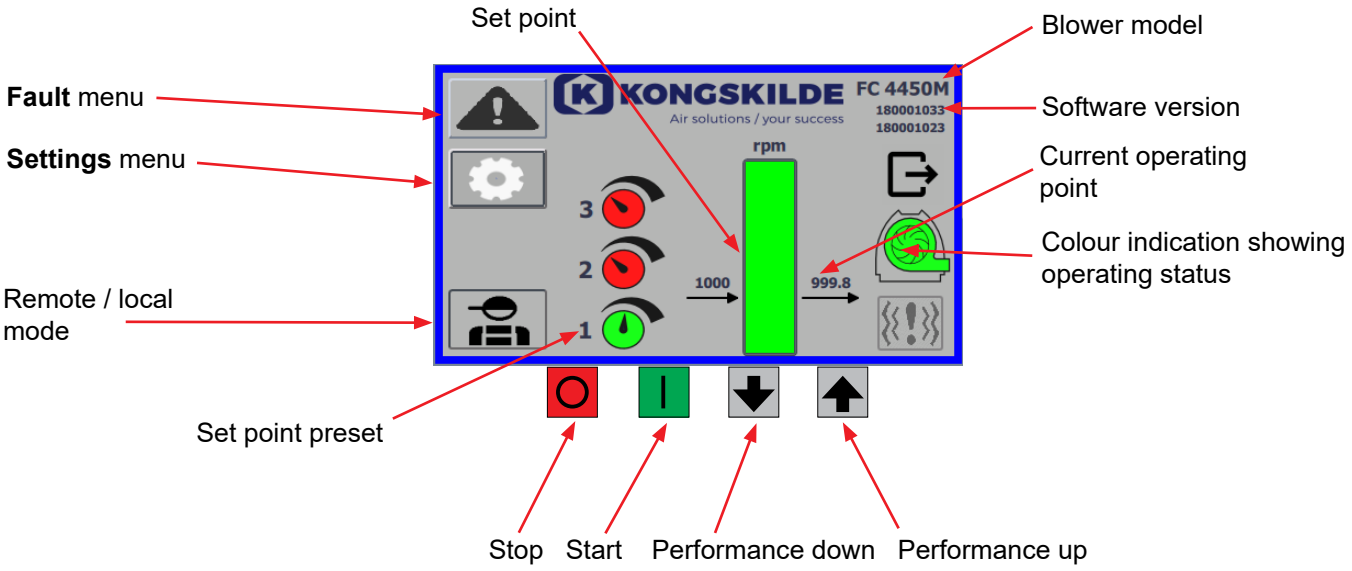
3. Admin - is password protected.
Admin sets up the fan operating mode, including

- speed, pressure- or flow control
- configuration of the blower's analog and digital in- and outputs

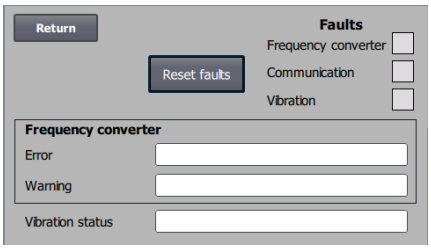
Normally, Admin will only be used in connection with blower installation.

NB - After 5 min. of inactivity on the operators panel, users **Tech** and **Admin** are logged off. Hence, you will have to login again to change further settings.

MAIN DISPLAY



The main display is accessible to all users and does not contain any language-dependent texts.



Fault menu

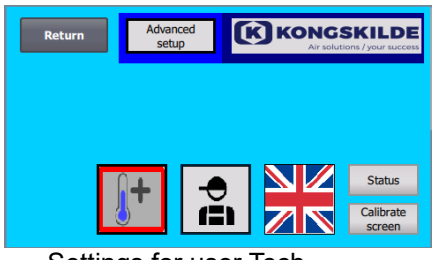
If an error occurs, the icon changes from black to flashing red. The error messages are sent from the control of the frequency converter directly to the operator panel. By pressing the icon, it is possible to read and reset the error, by pressing Reset Faults. This can only be done as a Tech and Admin user, and if the error can be corrected by resetting.

The drive error field will display faults that will normally cause downtime, such as an overheating of the motor or converter.

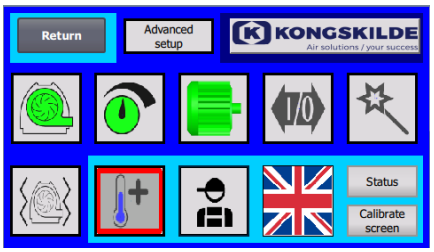
The drive warning field will display faults that will not normally cause downtime, such as a temperature rise above that allowed on the motor or inverter.

If the field to the right of "**Drive faults**" turns red, there is a fault in the motor, or possibly in the converter.
If the field to the right of "**Com faults**" turns red, there is an error in the communication between the PLC and the inverter.

The menu is left with Return



Settings for user Tech



Settings for user Admin

Settings menu

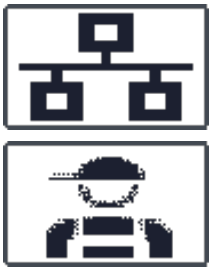
User Tech and Admin have the right to change settings.
By tapping the icon you enter Settings, where it is possible to select different submenus. The light blue background colour at the bottom indicates user Tech, which is a user who can set up rights for user Operator.

The medium blue background colour in the centre and up of the screen indicates user Admin, which is a user who has knowledge of setting up the blower and connected accessories. Admin is usually used only when setting up the blower.

See also the table with rights for the individual users, under "Setting up the blower via the operator panel".

The icon gives access to change languages between English, German, French and Danish.

The Calibrate Screen menu allows you to calibrate the touch screen, in case this should become necessary. The calibration must be done with the desired pointing device (finger, pencil, eraser or similar).



Remote / local mode

The icon shows whether the blower is set to remote or local control.

Remote control: The blower is controlled via digital inputs on the PLC or via the data bus, and cannot be operated from the operator panel.

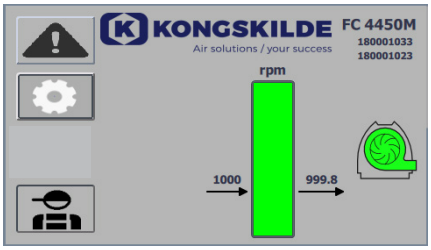
Local control: The blower is controlled from the operator panel. The parameters that can be controlled from the control panel are selected by user Tech or Admin in the Settings menu.

In case the operator has no rights to switch between remote and local, the symbol does not appear.

FC 2080
180001030
180001020

Version

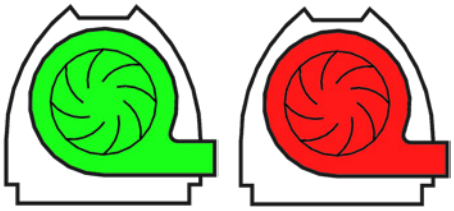
FC 2080: Specifies the blower model.
180001030 / 180001020: Indicates HMI / PLC software version.



Operating status

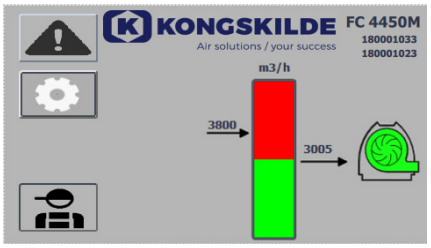
The screen shown here is the current operating status of the blower. The example shows:

1. **m³/h** - This is the unit of measurement for air speed. The control is set to control how much air speed the blower delivers.
2. **Vertical scale from 0 to 6000** - Scale showing the air speed. The green part of the scale shows how much air speed the blower is capable of delivering in the current situation.
3. **2500** - Indicates the set point, in m³/h.
4. **2505** - Indicates the current air speed of the blower, in m³/h.



Green blower icon - the blower runs as desired.
Green blower icon flashes - the blower is starting up or is unable to reach the set point.

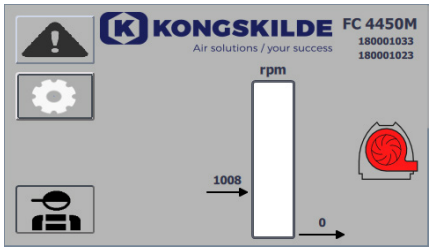
Red blower icon - the blower is stopped.
Red blower icon flashes - the blower is about to stop.



The screen shown here is the current operating status of the blower.

1. **3800** - indicates the set point, in m^3/h.
2. **3005** - indicates the current air speed of the blower, in m^3/h.
3. **Green blower icon** - indicates that the blower is running.

In this situation, the set point is set too high, or the blower performance too low. The blower cannot deliver the desired air flow, of 3.800 m^3/h.
The blower is only capable of delivering 3.005 m^3/h due to the maximum performance of the blower in conjunction with the system it is built into. This is indicated by the set point being in the red area of the scale and the red area of the scale flashes.
However, the blower is still running, with the performance reduced from the desired set point, to the maximum performance of the blower. Since the blower is still running, the green blower icon is displayed.



The screen shown here is the current operating status of the blower.

1. **2430** - indicates the set point, in m^3/h.
2. **Red blower icon** - indicates that the blower is stopped

The screen shown here is the current operating status of the blower, where the blower can be adjusted according to 3 different set points. It is possible to preset up to 3 different set points. You can choose between the set points via the icons displayed on the operator panel or via the digital inputs to the PLC.

The different set points are selected in the Set point setup menu.

The 3 different set points are displayed with the icon shown above, and the current set point is displayed in green.
If only 2 different fixed set points are selected, 2 rotary knob icons are displayed. If 1 set point is selected, none of the rotary knob icons are displayed.

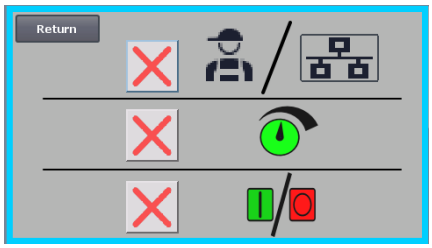
Switching between the set points is done on the operator panel, by touching the icon of the desired set point. The icon then changes colour from red to green. In remote control mode, 3 digital inputs are assigned, one to each set point.

Setting of the fixed set points is always done on the operator panel, as follows:
The set point to be adjusted, is selected via the icon on the operator panel, i.e. it must be green. The set point is then adjusted using the up and down arrow buttons below the screen. The set point is stored automatically, so no further action is required.

Whether the operator can adjust the set points, depends on the operator's rights. It will be natural to select the set points so that set point 1 is smaller than set point 2, and that set point 2 is smaller than set point 3.

Settings - User Tech

User Tech is password protected.



When the user is logged in as Tech, the screen appears with a light blue border.

Operator rights to operate the blower can be adjusted with the following submenus. It is Tech´s task to grant the operator the necessary rights to operate the blower. It is also Tech´s task to reset any error.

The screen shows that the operator does not have the right to switch between remote or local control, i.e. whether the blower is controlled from the operator panel or via the digital and analog inputs on the PLC. If there is a green tick, the operator has the right to switch between remote or local control.

The screen shows that the operator does not have the right to adjust the set point(s). If there is a green tick, the operator has the right to adjust the set point(s).

The screen shows that the operator has the right to start and stop the blower. This is done via the operator panel. If there is a red cross, the operator does not have the right to start and stop the blower.

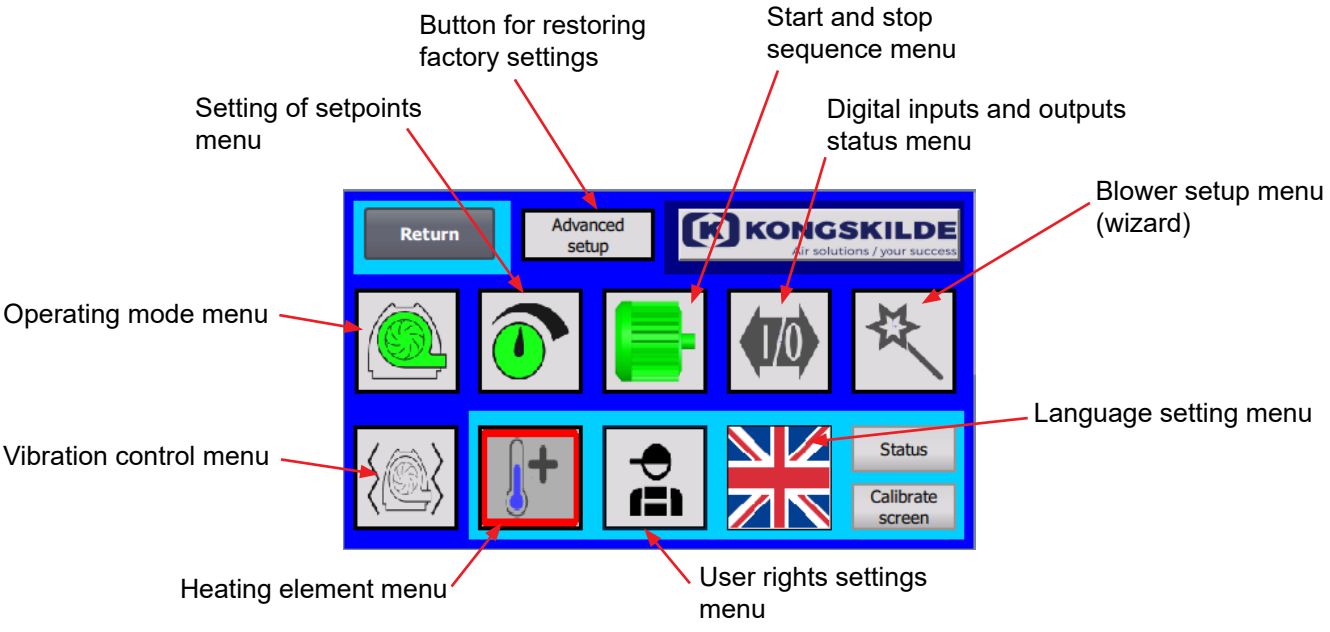
The blower is set by user Tech by:

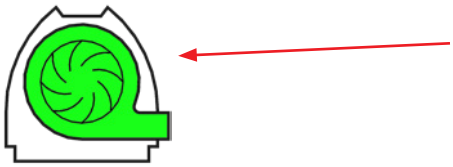
- log in as Tech
- give the operator all rights
- go back to main display
- adjust the blower as desired
- log in again as Tech
- give the operator the desired rights
- go back to main display

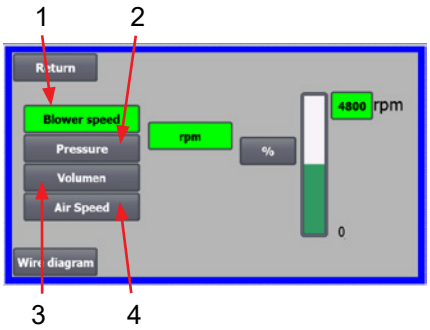
Settings - User Admin

User Admin is password protected.
When the user is logged in as Admin, the screen appears with a medium blue border.

It is Admin´s task during installation of the blower, to select the operating mode of the blower, as well as choose how the blower should be controlled. Admin is usually only used during the installation of the blower.







The icon gives access to the operating mode of the blower
The blower has 4 different operating modes:

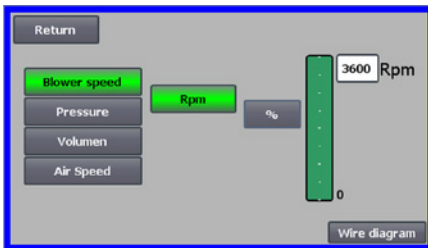
1. The blower runs at a fixed speed.

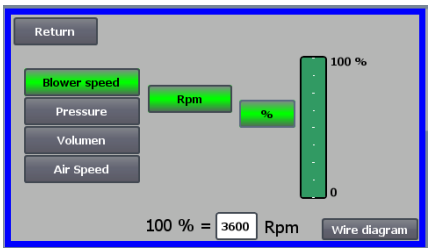
2. The blower delivers a fixed static pressure or vacuum. The pressure is measured with a pressure transducer connected to the blower control.

3. The blower delivers a fixed air speed. The air speed is measured with a pressure transducer connected to the blower control.

4. The blower delivers a fixed air velocity. The air velocity is calculated by checking the air flow as in point 3. In this operating mode, the pipe diameter must be specified to calculate the air velocity.

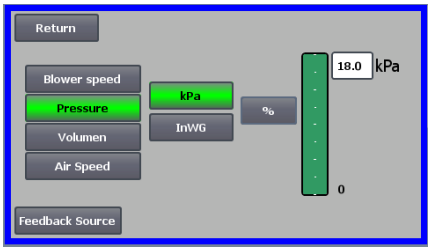
The 4 operating modes are described here:

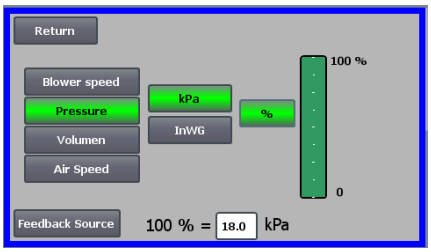




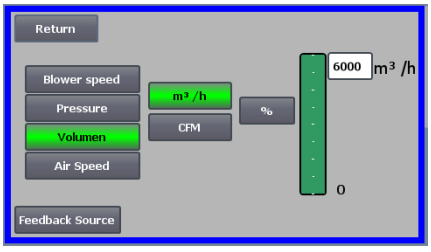
1 - The blower is running at a fixed speed. Since the frequency converter in this operating mode keeps the blower speed constant, the PID control of the converter is not used. The blower speed unit is only rpm, so it is not possible to select other units.
The maximum blower speed is 3.600 rpm, which is the default value of the speed. By default, the maximum speed for the current blower is displayed, here 3.600 rpm.
If the maximum blower speed is desired to be reduced, press the value, in this case the 3.600, and a new smaller value can be entered.
It allows you to change the scale to other values lower than 3.600 rpm which is the maximum on the scale. This can provide a better understanding of the operator, as the blower may not be able to achieve maximum speed, since this depends on the installation.
If the % button is selected, the speed scale will change to a % scale.
An extra line now appears at the bottom of the screen, where the ratio between 100% and speed must be defined.

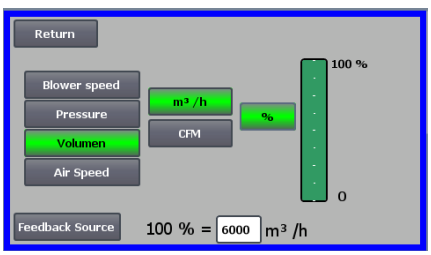
Pressing Wire diagram, a diagram appears, showing the connection of a pressure / vacuum or flow transducer



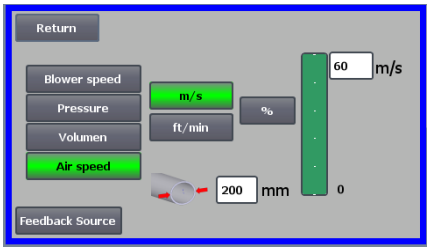


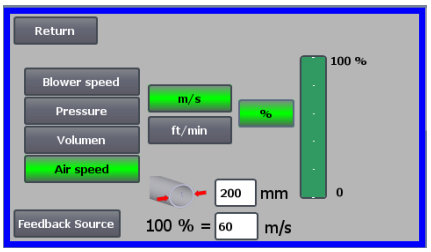
2 - The blower delivers a fixed static pressure. The pressure is measured with a pressure transducer connected to the blower control. The maximum pressure for the blower is 16 kPa, which is the default value on the pressure scale as seen on the right side of the screen. If you want to change the value, press the existing value and enter a new value.
It is possible to select the pressure in kPa or inWG (inch water gauge). If the pressure in inWG is selected, the unit on the scale changes to inWG. 16 kPa is approx. 64 inWG
It is possible to change the scale to other values lower than 16 kPa, which is the maximum on the scale. This can provide a better understanding of the operator, as the blower may not necessarily achieve the maximum pressure, since this depends on the installation.
If the % button is selected, the pressure scale will change to a % scale.
An extra line now appears at the bottom of the screen, where the ratio between 100% and the pressure in kPa / inWG must be defined.



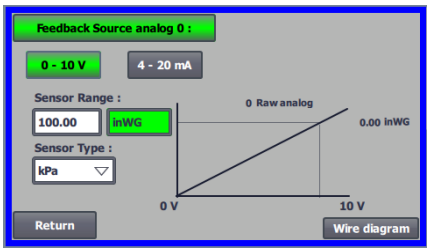


3 - The blower delivers a fixed air flow. The air flow is measured with a pressure transducer connected to the blower control.
The maximum air speed depends on the blower model. By default, the maximum air speed for the current blower is displayed, here 6.000 m^3/h.
If the maximum air speed should be reduced, the value is pressed, i.e. the 6.000, and a new smaller value can be entered.
It is possible to select air speed in m^3/h or in CFM (cubic feet per minute).
If the pressure in CFM is selected, the unit on the scale switches to CFM.
6.000 m^3/h is approx. 3.530 CFM.
It is possible to change the scale to other values lower than 6.000 m^3/h, which is the maximum on the scale. This can provide a better understanding for the operator, as the blower may not necessarily achieve the maximum pressure, since this depends on the installation.
If the % button is selected, the flow scale will change to a % scale.
An extra line now appears at the bottom of the screen, where the ratio between 100% and the flow in m^3/h / CFM must be defined.





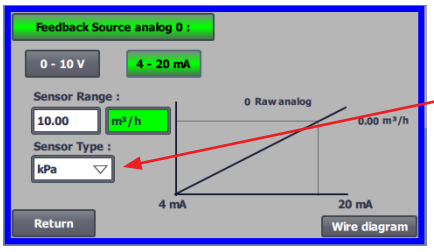
4 - The blower delivers a fixed air speed. The air velocity is calculated by controlling the air flow as in operating mode 3. In this operating mode, the pipe diameter must be specified, to calculate the air velocity.
It is rare that the blower's air speed is more than 60 m/s, which is why it is set to the default value on the air speed scale, as seen on the right side of the screen. If you want to change the value, press the existing value and enter a new value.
It is possible to select air speed in m/s or in ft/min. If the pressure in ft/min is selected, the unit on the scale changes to ft/min. 60 m/s is approx. 9.842 ft/min.
It is possible to change the scale to other values lower than 60 m/s, which is the maximum on the scale. This can provide a better understanding for the operator, as the blower may not necessarily achieve the maximum pressure, since this depends on the installation.
If the air speed is desired in a pipe diameter other than Ø350 (as on the blower's inlet and outlet), this can be corrected to the right of the pipe icon.
If the % button is selected, the air velocity scale will change to a % scale. Another max % value can then be entered.
An extra line now appears at the bottom of the screen, where the ratio between 100% and the air speed in m/s / ft/min must be defined.



Both with control with pressure (Pressure), Volume or flow (Air speed) it is possible to select Feedback Source. In this screen, a curve is seen over the input signal, which here must be 0 at 0V and max. at 10V.
The max. value is specified in the field to the left, and the unit of measurement in the field to the right.
First select whether the signal from the transducer is a 0-10 volt signal or a 4-20 mA signal. Next, select which value the maximum output of the pressure transducer represents, here 10 volts corresponds to 40 InWG. It is possible to switch between InWG and kPa.

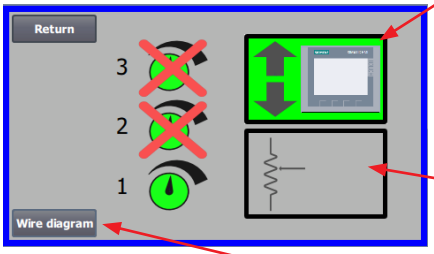
Pressing the icon Wire diagram, a diagram appears, showing the connection of a pressure- or flow transducer.

When control by pressure, flow or air speed, it is possible to choose a different type of differential pressure transducer than the one supplied in the standard kit from Kongskilde.



When control by either pressure, flow or air velocity, it is possible to choose whether the installed sensor measures in kPa or inWG. If nothing else is set in sensor type, the values are in kPa.

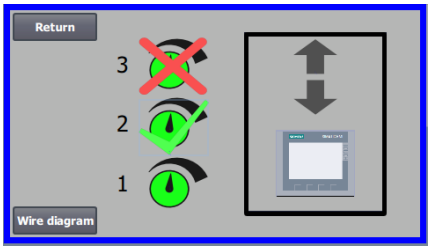
The icon gives access to set point setup



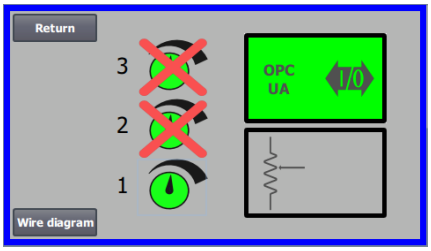
The screen on the left shows that only one set point in Local operation has been selected, since set points 2 and 3 are crossed over. The set point is adjusted from either the up and down arrows on the operator panel, or via the digital inputs on the PLC (shown in the box in the upper right corner). Incidentally, it is seen that the set point of the blower is adjusted from the operator panel or via the digital inputs on the PLC.

The set point can also be adjusted via the analog input on the PLC (shown in the box in the lower right corner - the box will then switch to green background).

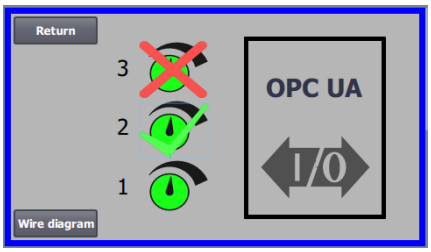
Pressing the Wire diagram shows a diagram showing the connection of the digital inputs and outputs.



The screen on the left shows that 2 set points in Local operation have been selected. The set points are adjusted with the up and down arrows, and only on the operator panel. It is possible to choose between up to 3 different set points. If you want to select more fixed set points, press the set point icons that are crossed over, whereby the cross disappears.
If more than one fixed set point is selected, it is not possible to use the analog input to adjust the set points.

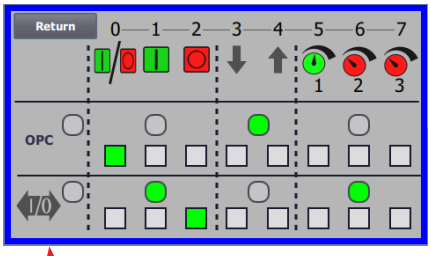


The screen to the left shows that only one setpoint is selected in Remote operation, since setpoints 2 and 3 are crossed out. The setpoint is adjusted from either the digital inputs on the PLC or over network communication via OPC UA.



The screen to the left shows that 2 setpoints are selected in Remote operation. The setpoints are adjusted either from the digital inputs on the PLC or via network communication via OPC UA.
It is possible to choose between up to 3 different setpoints. In case several fixed setpoints are needed, press the setpoint icons that are crossed out, whereby the cross disappears.
If more than one fixed setpoint is selected, it is not possible to use the analogue input to adjust the setpoints.

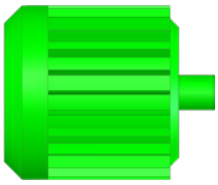
NB - The MultiAir blower acts as an OPC UA server.



Pressing OPC UA shows the screen for the digital inputs.
The squares show the status of signals on digital inputs and OPC UA.
Green shows that the signal is ON.
The rounded squares show in green if start/stop, setpoint up/down and setpoint selection is controlled from OPC UA or from digital input on the PLC.

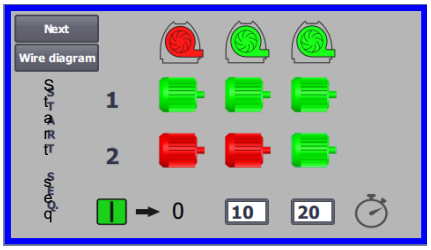
A selection chooses between:

- all OPC UA or
- all I/O



The icon gives access to the blower start and stop sequence

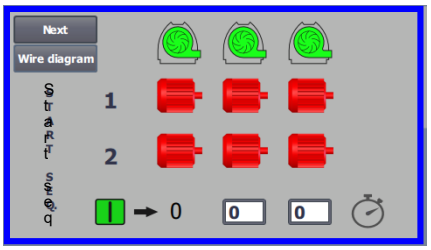
The blower control can start and stop up to 2 external electric motors, in connection with starting and stopping the blower. It is possible to select the order of both start / stop of blower / electric motors, and with which time interval, the blower and each of the two electric motors must start or stop, respectively.



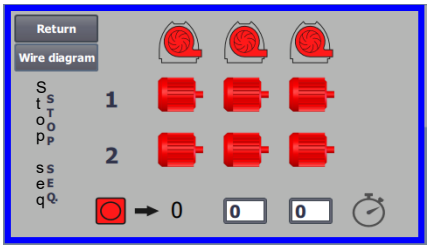
The screen on the left shows an example where:

- When the blower receives the start signal at time 0, the external electric motor 1 is started (on a cutter, for example).
- 10 sec. after the start signal, the blower itself is started.
- 20 sec. after the start signal, the external electric motor 2 is started (on a separator, for example).

Times 10 and 20 sec. are examples only.



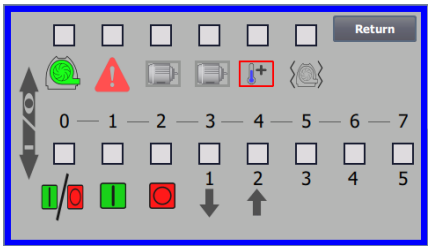
The screen on the left shows the default settings for the start sequence. There are no external electric motors connected to the blower, and the blower starts when it receives the start signal.



When the menu for the blower's start sequence is left with the return button, you come to a corresponding stop sequence menu. The screen on the left shows the default stop sequence. The stop sequence can be set in the same way as the start sequence.

Pressing the icon Wire diagram, a diagram appears, showing the connection of the digital inputs and outputs.

The icon shows status for digital input and output
The icon gives access to a status image. It is not possible to manually adjust the status of the digital inputs and outputs.



The screen on the left shows the status screen for the blower setup, where 1 set point is selected.

The top 6 icons show the digital outputs:

0 ON The blower is running
OFF The blower is stopped

1 ON Indicates a fault in the blower
OFF here is no fault in the blower

2 ON External electric motor 1 running
OFF External electric motor 1 stopped

3 ON External electric motor 2 running
OFF External electric motor 2 stopped

4 ON External heating element
OFF External heating element

5 ON Vibration sensor
OFF Vibration sensor

The bottom 8 icons show the digital inputs:

0 ON Starts the blower
OFF Stops the blower

1 ON Starts the blower with a short pulse
OFF If the blower starts with a pulse, it continues to run

2 ON Allows the blower to start
OFF Stops the blower

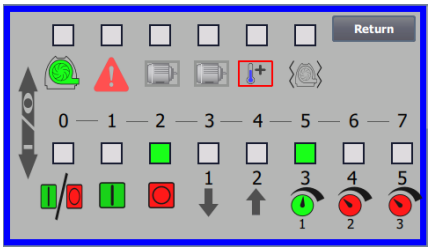
3 ON Reduces set point

4 ON Increases set point

5 ON Select setpoint 1 at 2 or 3 fixed setpoints

6 ON Select setpoint 2 at 2 or 3 fixed setpoints

7 ON Select setpoint 3 at 3 fixed setpoints



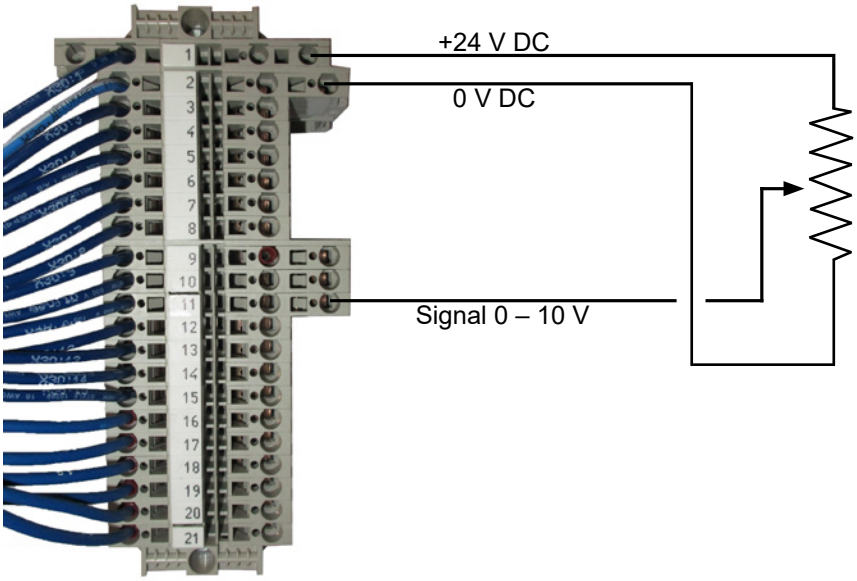
The screen on the left shows the blower setup, where more than one set point is selected.
The bottom 3 icons on the right show the digital inputs that select, which set point should be active. Here, set point 1 is active.

The icon for blower setup - setup wizard
The icon indicates a wizard that makes it easy to set up the blower. Selecting this wizard gives you access to:

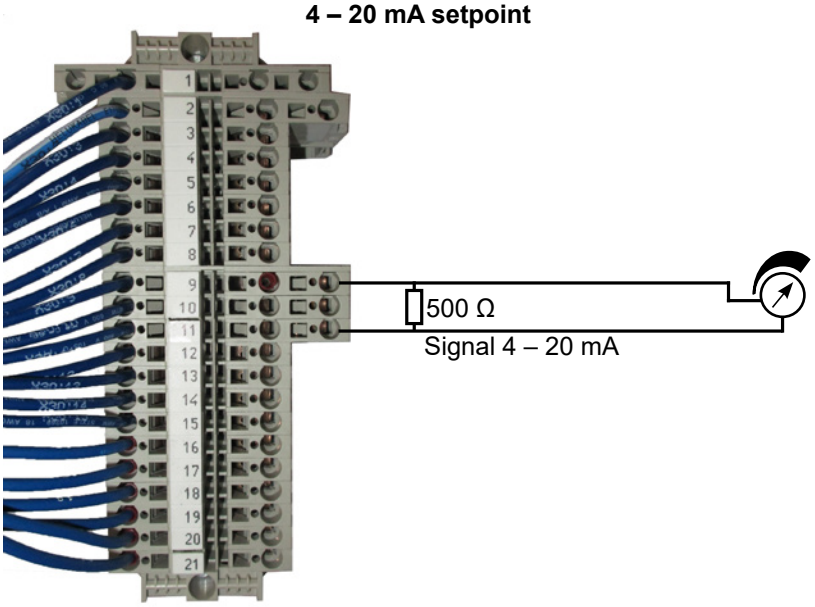
- set point setup
- setting up air velocity
- startup sequence setup
- stop sequence setup
- setting up user rights

Below are examples of connection diagrams:

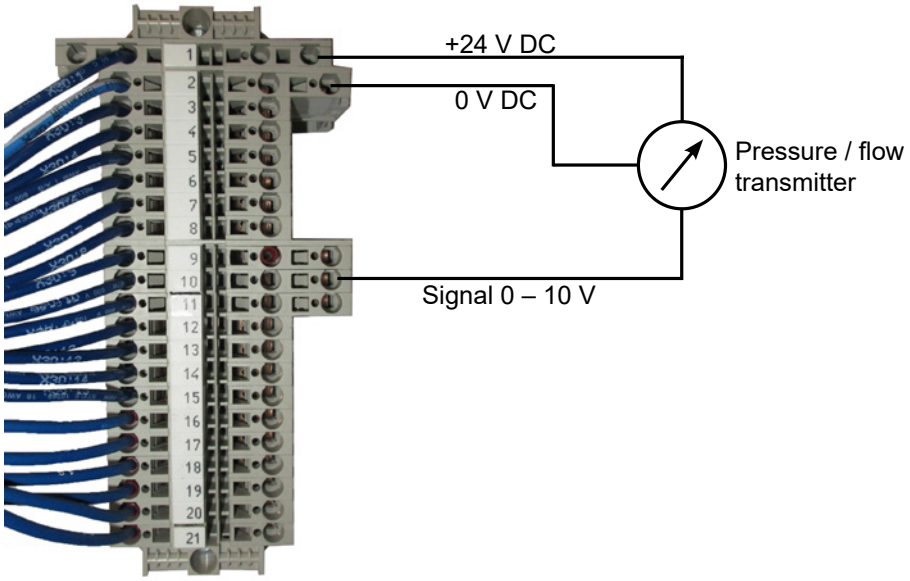
0 – 10 V setpoint



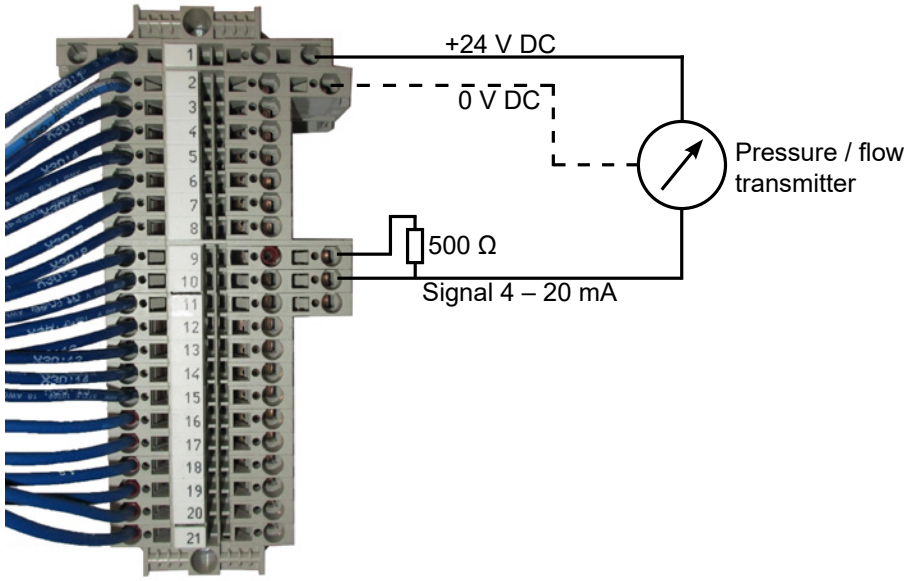
4 – 20 mA setpoint

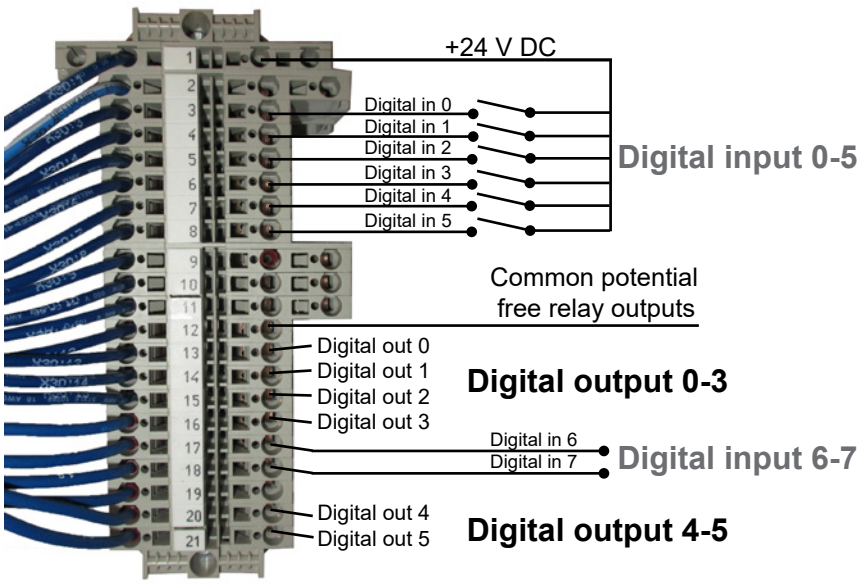


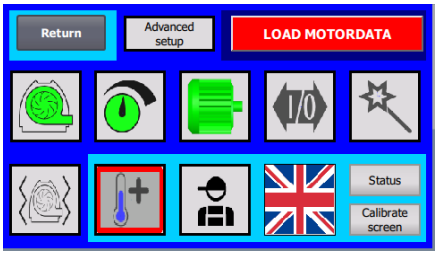
0 – 10 V feedback

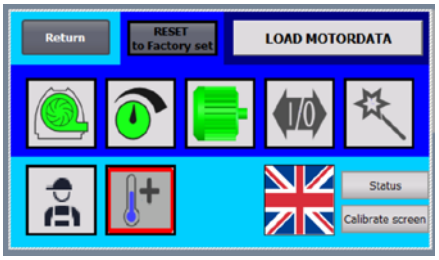


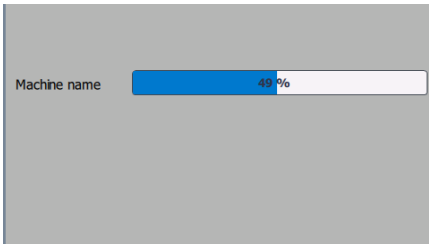
4 – 20 mA feedback











Replacing the frequency converter

If the frequency converter has been replaced, proceed as follows:

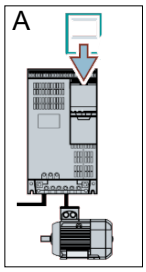
- login as Admin
- press the Kongskilde logo in the upper right corner for 10 sec
- the Kongskilde logo changes to LOAD MOTOR DATA and flashes
- press the flashing LOAD MOTOR DATA
- on the new page press: Load parameters to drive
- when the blue bar is at 100%, press Return

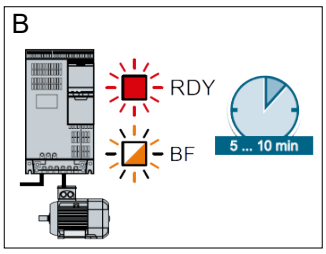
The software is now downloaded to the frequency converter.

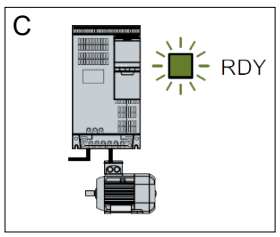
In the Supply Voltage field, you can change the parameters of the supply voltage to the frequency converter, e.g. if the mains supply is 480V. This is only necessary in case of repeated overvoltage faults when operating the blower. See section "Troubleshooting" if necessary.

In case it is not possible to load the new data, the frequency converter is not set up to communicate to the PLC. If so, proceed as follows:

- Check all cable connections according to the wiring diagram (if the LINK and Rx/Tx diodes are flashing, the network cable between the PLC and the converter is OK).
- Switch off the blower on the main switch.
- Insert an SD card with software into the top of the converter (A).
- Switch on the blower on the main switch.
- The converter is now retrieving parameter data (B).
- When the RDY LED turns green, switch off the blower on the main switch (C).
- Remove the SD card.
- Wait at least ½ minute before switching the blower back on.







Operation:

The blower is switched on and off on the main switch. By using the operator panel (and possibly external plant control) it is possible to regulate the performance of the blower steplessly. It is therefore possible to adjust the performance of the blower, so that it fits exactly to the plant in question.

The adjustment can either be done manually, by adjust the blower speed, or automatically, by connecting measuring equipment to the pipe system.
The measuring equipment measures either the static pressure in the pipe system, and keeps this pressure constant, or measures the air velocity in the piping, and maintains the air velocity, and thereby air flow constant.

To achieve energy savings, it is important not to operate with higher performance than necessary, to solve the task in question. Furthermore, too high blower performance can cause damage to the material being transported. After setting up and running in the blower, the set point is stored, even if voltage is removed from the blower. When the blower is in operation, and current performance is in accordance with the set point, the current value is displayed constant. If the set point is changed, the blower will automatically adjust the performance within its capacity.

Starting the blower: Press the start button (2). When the blower is in operation, the blower icon lights up green.

Stopping the blower: Press the stop button (1). When the blower is stopped, the blower icon lights up red.

To increase blower performance: Press the up arrow button (3). The button can be held down constantly for a major adjustment. Until the blower has reached the desired performance, the green blower icon flashes.

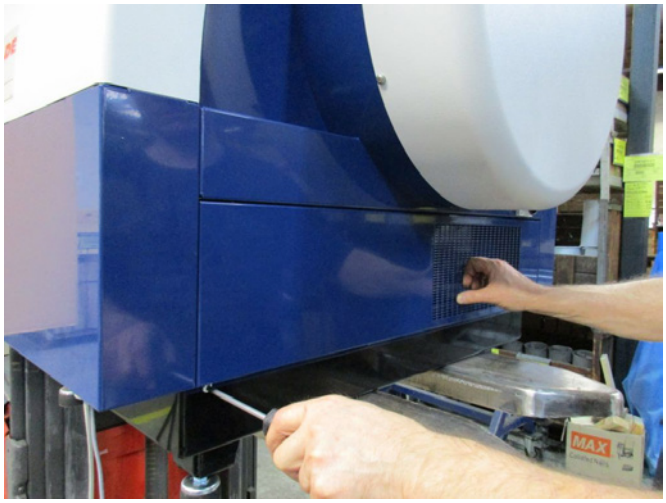
To decrease blower performance: Press the down arrow button (4). The button can be held down constantly for a major adjustment. Until the blower has reached the desired performance, the green blower icon flashes.

If the desired set point cannot be achieved, the green blower icon will flash.

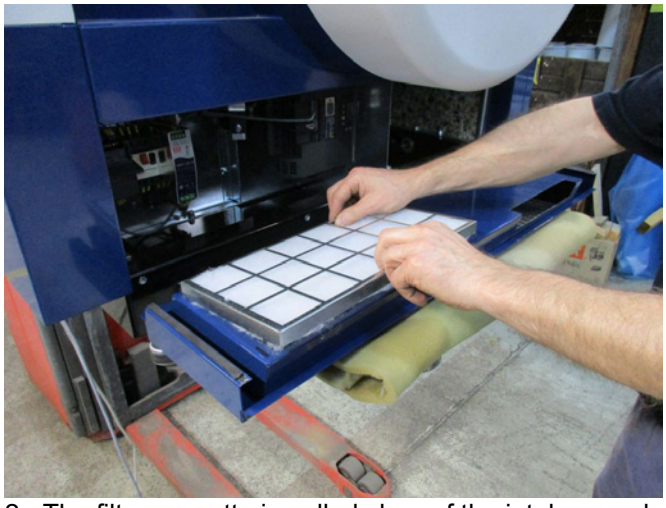
Starting and stopping the blower during normal operation must be done on the operator panel, or at the input on the blower digital inputs. In the event that the main switch is switched off and reconnected before ½-1 minute after disconnection, it may be necessary to reset an error in the error menu, after which the blower normally works again. The blower should therefore not be stopped with the main switch, but with the Stop button on the operator panel

Service and maintenance:

All service, maintenance and repairs should be performed by qualified or trained personnel.
The motor bearings are lubricated at the factory and require no additional lubrication. The blower´s rotor is mounted directly on the motor shaft; there are therefore no bearings in the blower itself.
Make sure that there is always an unobstructed flow of cooling air to the blower. The blower is equipped with a filter, installed in the intake panel below the motor. This filter shall be cleaned or replaced as needed. Furthermore, it can be necessary to clean the grid at the intake port, especially if the blower is installed outdoors.
The filter can be inspected as follows:



1 - They 4 pcs. M6 screws are removed, the panel pulled downwards, and set aside.



2 - The filter cassette is pulled clear of the intake panel, the screw is loosened, and the filter removed. The filter can be cleaned as needed, with pressurized air or water. If water is used, the filter must be dry before insertion. In case the filter is very dirty or clogged, it should be replaced.
Make sure to refit the filter properly when inserting. The filter cassette is pressed in place,the screw refitted, the intake panel is put back, and the 4 screws reinstalled.

Once a year, the following maintenance should be performed:

- Visual inspection of all pipe connections, covers and electrical connections/cables, to ensure attachment and tightness.
- Ensure that all electrical connections are tightened properly.
- Ensure that both cooling fans for the AC drive are running at full speed, and possibly also remove any dust deposits from the fans.

The AC drive is equipped with 2 cooling fans, that operates as soon as the blowers main switch is turned on. Expected lifetime for these 2 fans are 4-6 years continuous operation, where after they will reduce their rpm, and finally stop (see section "Troubleshooting"). The fans should be replaced before their output are reduced significantly, to ensure correct cooling of the AC drive.

The MultiAir blower should be stored in dry, non-corrosive atmosphere, at temperature between -20 and +55 °C.

Important:
Important: If the AC drive has been without voltage supply for longer than 12 months, Kongskilde must be contacted before the blower is reconnected. Otherwise, the AC drive can be damaged, as it contains capacitors that must undergo a startup procedure.

MultiAir FCE with external control cabinet must also have the control cabinet filters inspected and cleaned with compressed air or water. If water is used, the filter must dry before insertion. If the filters are very dirty, they must be replaced.
There are filters on both sides of the control cabinet. They can removed by clipping the frames off with a screwdriver.
Be sure to position the filters correctly when inserting.

Troubleshooting:

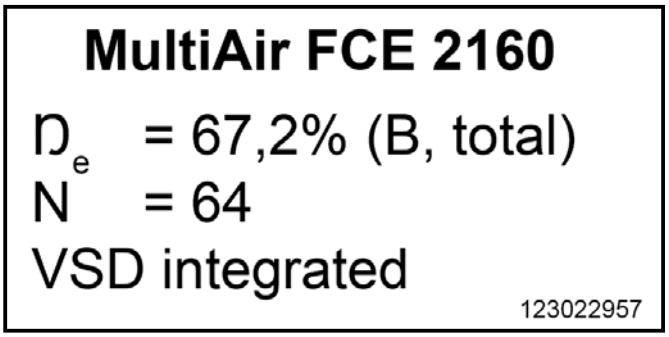
Fault	Cause	Remedy
No power on the operators panel	Missing main power supply or switched off main switch.	Check that the main power supply is connected and that the main switch on the blowers side panel is on.
	Interrupted circuit breaker at the blowers AC drive	Reconnect the circuit breaker (see section "Electrical installation")
The blower does not start when the "Start" button is pushed	The blower has been switched off on the main switch and switched on again too fast.	Reset error with "Ack Fault" on the operators panel.
	"Remote" is chosen on the operator´s panel.	Login as **Tech** or **Admin** and set to "Local" (if needed).
	Operator has not access to operate the blower.	Login as **Tech** or **Admin** and set correct access for **Operator** (if needed).
	Digital input signal External Stop NC not chosen and / or correspondingly connected in terminal X30.	Connect stop to terminal X30 or check connection. Chose the correct digital input on the operator panel.
	The blower AC drive damaged due to overvoltage caused by loose wiring or vibrations transmitted to the blower from the ground or the connected pipe system.	Replace AC drive and tighten wiring connections securely. Check for vibrations and correct according to section "Mounting".
	If an external start / stop switch is installed, loop may be missing between terminals 1 and 5	Install loop between terminals 1 and 5 in terminal row X30
The blower does not stop when the "Stop" button is pushed	"Remote" is chosen on the operator´s panel.	Login as **Tech** or **Admin** and set to "Local" (if needed).
	Operator has not access to operate the blower	Login as **Tech** or **Admin** and set correct access for **Operator** (if needed)

The blower does not start or stop when operated from the digital input	"Local" is chosen on the operator´s panel. The digital input "External Stop NC" has not been configured correctly	Login as **Tech** or **Admin** and set to "Remote" (if needed). Ensure that the circuit is closed
The blower does not respond to pressing the "↓" and "↑" buttons on the operator´s panel	"Remote" is chosen on the operator´s panel. **Operator** has not access to operate the blower	Login as **Tech** or **Admin** and set to "Local" (if needed). Login as **Tech** or **Admin** and set correct access for **Operator** (if needed)
No data is shown in the operator´s panel	Missing connection between the AC drive and the panel (via the Profinet connection). "USS com fault" is diplayed in the menu **Status**. AC drive defect. Missing power supply to the operator´s panel	Reconnect or replace the Ethernet cable. Check if they are light in the AC drive's display. Replace the AC drive. Restore the 24VDC connection
The blower stops unexpected	The blowers motor is overheated, and has been switched off by the PTC sensor in the motor	The motor should be allowed to cool down, and the course for overheating examined
Erratic blower performance	Pressure- or flow control transmitter is not correctly installed in piping, and / or not correctly connected to the blower. The blowers frequency converter has reached max. permissible temperature, and "Inverter overtemperature" is displayed in the menu Error. The differential pressure transducer is mounted on a vibrating surface	Check that the pressure- or flow control transmitter is correctly installed in the pipeline (airflow in arrows direction) and properly connected to the blower electrically. Clean the air filter in the intake panel. Check the cooling fans on the AC drive. If possible, reduce ambient temperature. If possible, reduce the need for capacity Move the transducer to a vibration-free surface
Poor performance of the blower	The blowers AC drive has reached max. permissible temperature, and "Inverter overtemperature" is displayed in the menu **Status**	Clean the air filter in the intake panel. Check the cooling fans on the AC drive. If possible, reduce ambient temperature. If possible, reduce the need for capacity
Blower cannot reach desired setpoint and "Unable to reach setpoint" is displayed on the operator panel	The blowers performance is too low for the system and setpoint	Adjust the setpoint down to max. achievable performance. Customize the system so that the blower can provide the required performance. Choose a blower with higher performance

In case of doubt, contact a qualified service technician or Kongskilde service department.

Ecodesign regulation
The MultiAir FC/FCE 2000 series meets the European Ecovent 2009/125 / EC requirements according to the Commission Regulation (EC) no. 327/2011, with performance measurements made in laboratory - it can therefore not be expected that the same performance can be achieved in practice.

On the blower, this is documented via the marking as prescribed (example):



The marking indicates the required values according to the standard, as explained below.

η_e:
Total efficiency based on total pressure. The total pressure is the difference between the stagnation pressure at the blower outlet and the stagnation pressure at the blower inlet. Stagnation pressure is the pressure measured on moving air if this air was put to rest by an isentropic process.

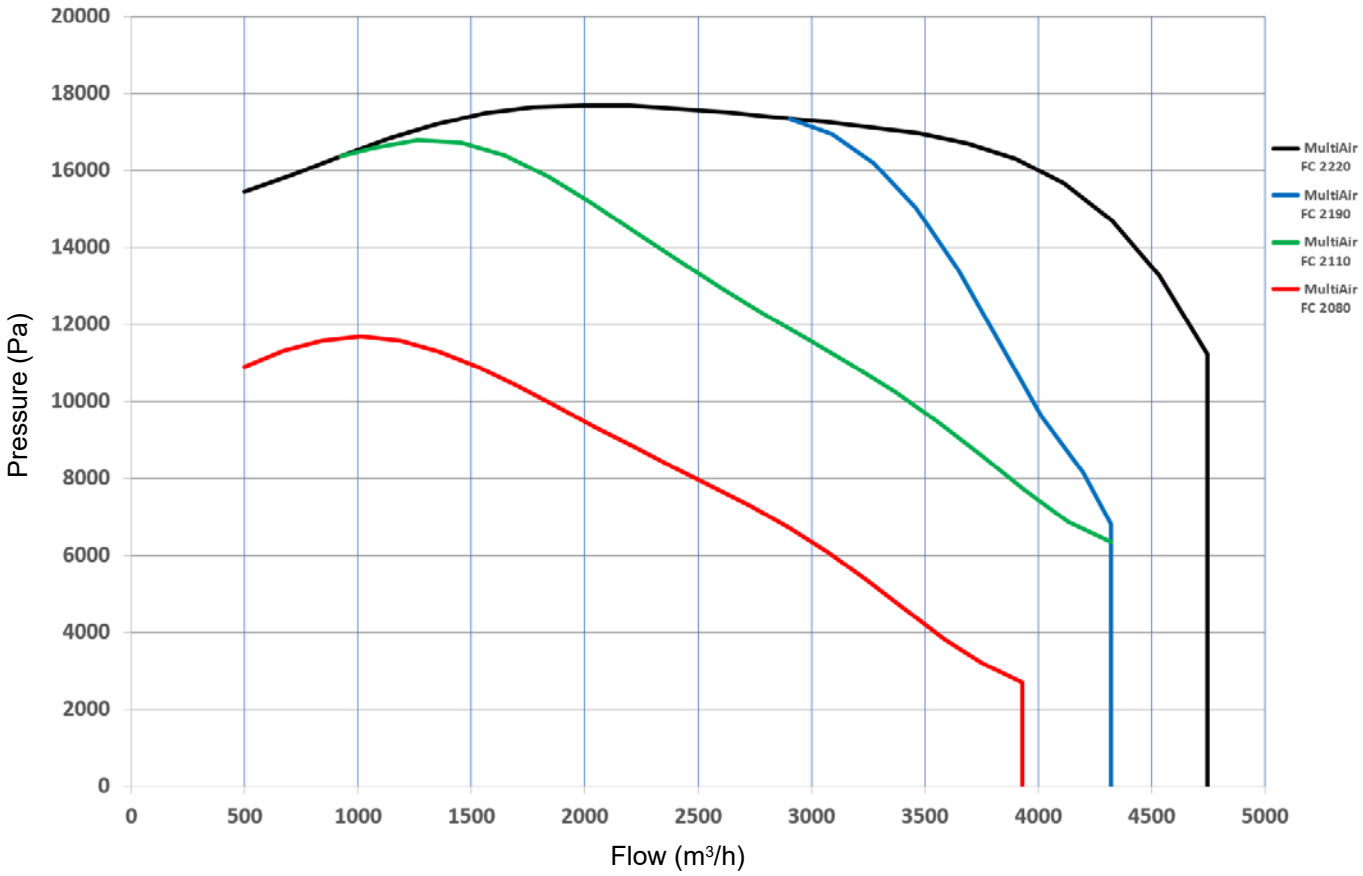
B:
An installation where measurements of the blower are made with free inlet and a pipe connected to the outlet.

N - (Efficiency classification):
Parameter in the calculation of the target value for the energy efficiency of a blower, with a specific applied electrical input power at the optimal operating point.

VSD - Variable Speed Drive:
A frequency converter which continuously adjusts the applied current so that the motor emits a mechanical power with a torque and at a speed corresponding to its current load.
All clean air blowers with outputs between 125W and 500kW must be equipped with a frequency converter to meet the requirements of the Commission Regulation (EC) no. 327/2011.

All calculations have been performed in accordance with DS / EN ISO 5801: 2017.

Performance curves for MultiAir FC/FCE 2000 series



MultiAir type	FC 2080	FC 2110	FC 2190	FC 2220	FCE 2160
Rated blower power (kW)	7,5	11	18,5	22	16
Power supply	380 - 480 V, 50 / 60 Hz				200 - 230V 50/60Hz
Fuse rating (Ampere)	25A	40A	50A	63A	80A
Weight (kg)	290	331	335	342	320 (excl. control box)
Heating of air at 1.800 m³/h in °C	10	14	20	20	20
Ambient temperature	-10°C to 50°C				
Blower control	Blower performance is regulated by built-in AC drivere (VSD)				
Energy efficiency η_e	64,2%	64,9%	67,4%	67,2%	-
Energy efficiency method and -type	B - total				
Efficiency class	N 64				
Rated motor power (kW)	7,5	15	26,1	32,2	-
Volume flow at optimum energy efficiency Q (m³/h)	2.560	3.175	3.275	3.475	-
Pressure at optimum energy efficiency P_t (Pa)	7.800	10.950	16.200	16.950	-
Rpm at optimum operating point	3.720	4.060	4.890	4.950	-
Specific pressure ratio between inlet and outlet	1,08	1,11	1,16	1,17	-
MultiAir FC/FCE features	The blower performance is manually set on the operator panel. Flow or pressure control can be purchased for extended blower control				
Approvals	CE - UL/CUL upon request				CE
Sound pressure level L_p (1 meter)	≈ 72-76 dB (A) (application dependent)				

EC Declaration of Conformity
Kongskilde Industries A/S,
Skælskørvej 64, 4180 Sorø - DK
Hereby declare that:

Kongskilde blowers type
MultiAir FC/FCE 2000 series

are designed and produced in conformity with the following EC-directives and regulations:
- Machinery Directive 2006/42/EC
- Electro Magnetic Compatibility Directive 2014/30/EC
- Regulation of Ecodesign for Electric Fans (EU) No 327/2011

EG-Konformitätserklärung
Kongskilde Industries A/S,
Skælskørvej 64, 4180 Sorø - DK
Erklären hiermit, daß:

Kongskilde Gebläse Typ MultiAir FC/FCE 2000 series

werden in Übereinstimmung mit den folgenden EG-Richtlinien und Verordnungen entwickelt und hergestellt:
- Maschinen-Richtlinie 2006/42/EG
- EMC-Richtlinie 2014/30/EG
- Ökodesign-Verordnung für elektrische Gebläse (EU) Nr. 327/2011

Déclaration de conformité CE
Kongskilde Industries A/S,
Skælskørvej 64, 4180 Sorø - DK
Déclare par la présente que:

Kongskilde ventilateur type MultiAir FC/FCE 2000 series

sont conçues et produites en conformité avec les directives et réglementations européennes suivantes :
- Directive sur les machines 2006/42/CE
- Directive sur la compatibilité électromagnétique 2014/30/CE
- Règlement sur l'écoconception des ventilateurs électriques (UE) n° 327/2011

Declaración de conformidad CE
Kongskilde Industries A/S,
Skælskørvej 64, 4180 Sorø - DK
Por la presente declaro que:

Kongskilde ventiladores tipo MultiAir FC/FCE 2000 series

están diseñados y fabricados de conformidad con las siguientes directivas y reglamentos de la CE:
- Directiva de Máquinas 2006/42/CE
- Directiva de Compatibilidad Electromagnética 2014/30/EC
- Reglamento de diseño ecológico para ventiladores eléctricos (UE) nº 327/2011

Deklaracja Zgodności WE
Kongskilde Industries A/S,
Skælskørvej 64, 4180 Sorø - DK
Niniejszym deklaruje, że:

Kongskilde dmuchawy typu *MultiAir FC/FCE 2000 series*

zostały zaprojektowane i wyprodukowane zgodnie z następującymi dyrektywami i przepisami WE:
- Dyrektywa maszynowa 2006/42/WE
- Dyrektywa w sprawie kompatybilności elektromagnetycznej 2014/30/WE
- Rozporządzenie w sprawie ekoprojektu dla dmuchaw elektrycznych (UE) nr 327/2011

EF-overensstemmelseserklæring
Kongskilde Industries A/S,
Skælskørvej 64, 4180 Sorø - DK
Erklærer hermed, at:

Kongskilde blæsere type MultiAir FC/FCE 2000 series

er designet og produceret i overensstemmelse med følgende EU direktiver og bestemmelser:
- Maskindirektivet 2006/42/EC
- Direktiv om elektromagnetisk kompatibilitet 2014/30/EF
- Forordning om miljøvenligt design af elektriske blæsere (EU) nr. 327/2011

Dichiarazione CE di conformita
Kongskilde Industries A/S,
Skælskørvej 64, 4180 Sorø - DK
Con la presente si dichiara che:

I ventilatori Kongskilde nei modelli da MultiAir FC/FCE 2000 series

sono progettati e prodotti in conformità alle seguenti direttive e regolamenti CE:
- Direttiva Macchine 2006/42/CE
- Direttiva sulla compatibilità elettromagnetica 2014/30/CE
- Regolamento di progettazione ecocompatibile dei ventilatori elettrici (UE) n. 327/2011

EG Verklaring van Overeenstemming
Kongskilde Industries A/S,
Skælskørvej 64, 4180 Sorø - DK
Verklaren hierbij dat:

Kongskilde blowers type MultiAir FC/FCE 2000 series

zijn ontworpen en geproduceerd in overeenstemming met de volgende EG-richtlijnen en verordeningen:
- Machinerichtlijn 2006/42/EG
- Richtlijn Elektromagnetische Compatibiliteit 2014/30/EG
- Verordening inzake ecologisch ontwerp voor elektrische blowers (EU) nr. 327/2011

EG-försäkran om överensstämmelse

Kongskilde Industries A/S,
Skælskørvej 64, 4180 Sorø - DK
Härmed försäkras att:

Kongskildes fläkter typ MultiAir FC/FCE 2000 series

är konstruerade och tillverkade i enlighet med följande EG-direktiv och förordningar:

- Maskindirektivet 2006/42/EG
- Direktiv om elektromagnetisk kompatibilitet 2014/30/EG
- Förordning om ekodesign för elektriska fläkter (EU) nr 327/2011

Kongskilde Industries A/S
Sorø 01.10.2025

Oscar William Gunner
CEO

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