

FU-Control and fixed-speed compressors

FU-Control keeps running variable-speed compressors in their efficient range. It is effective

when at least 2 variable-speed compressors are installed.

FU-Control requires actual-pressure feedback to the compressors: their speed is adjusted by applying an offset to the actual-pressure signal.



Open Control parameters.

Use the FU-Control button to enable or disable the function in this menu.

The following parameters act globally for all FU compressors at the same time:

Sampling interval: [Default: 5000 ms] Time between control adjustments

Minimum limit: [Default: 20%] Lower limit of the VSD control range

Maximum limit: [Default: 80%] Upper limit of the VSD control range

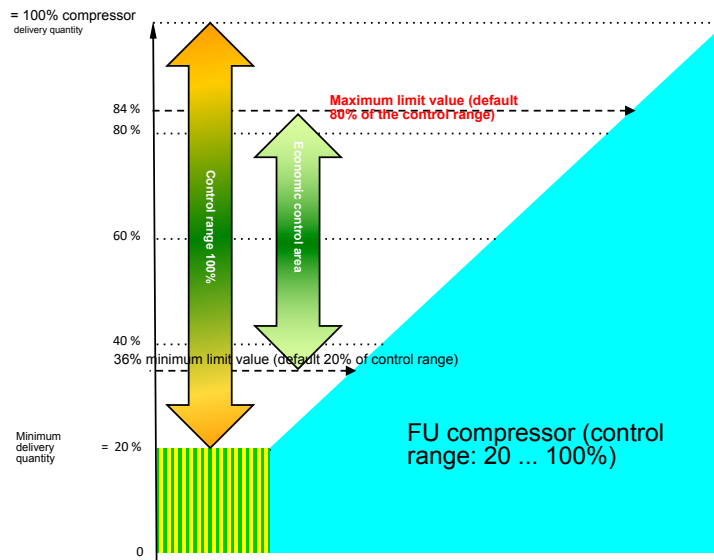


Offset step: [Default: 0.005 bar] Pressure increase or decrease at the module AO per sampling interval

Maximum offset: [Default: 0.1 bar] Maximum pressure adjustment

Before enabling FU-Control, set each variable-speed compressor pressure setpoint to the midpoint of the Airleader pressure band.

All offset adjustments reset at a switching point.



Example:

2 variable-speed compressors, each rated 3.5-12 m³/min, i.e.:

- Compressor delivery quantity (max) = 12 m³/min
- Control start at 3.5 m³/min
- Control range = 12 – 3.5 = 8.5 m³/min

-> Minimum limit at 20% = $0.2 * 8.5 = 1.7$ m³/min

Maximum limit at 80% = $0.8 * 8.5 = 6.8$ m³/min

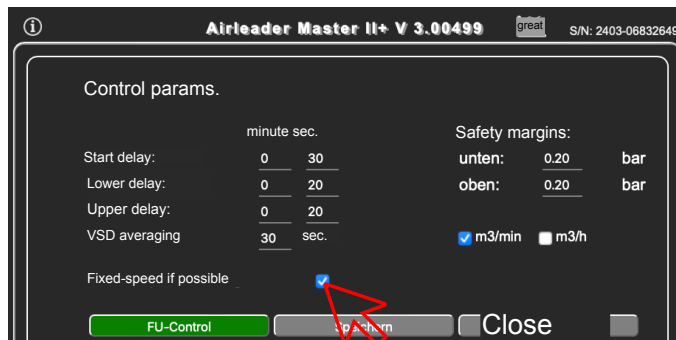
In relation to the compressor delivery quantity this means:

The “green” range is between 3.5 + 1.7 = 5.2

m³/min and 3.5 + 6.8 = 10.3 m³/min!

If the compressors operate outside this range, FU-Control starts adjusting the pressure offset.

Fixed-speed if possible



- If the check mark is not set, [Default] unregulated compressors will only be activated after all variable-speed compressors at the same priority level, i.e. variable-speed compressors have **strict priority**.
- If the check mark is set, the function is activated and unregulated compressors switched on as soon as this is possible with sufficient control range. That is normally **the most economical way of operating**.

Switching to MANUAL for extreme pressure values

Unexpected extreme values in the pressure display are often due to sensor damage (cable defects, interference, short circuit) and lead to pressure display around 0 bar or 11 bar. Such values cause the control to either switch all compressors to full load without braking or to switch off all compressors. In order to prevent these effects, an upper and lower pressure limit can be activated on the control side in the [Pressure profiles] menu. If the pressure is exceeded or fallen below, the compressors are switched to "MANUAL" and the control becomes inactive.

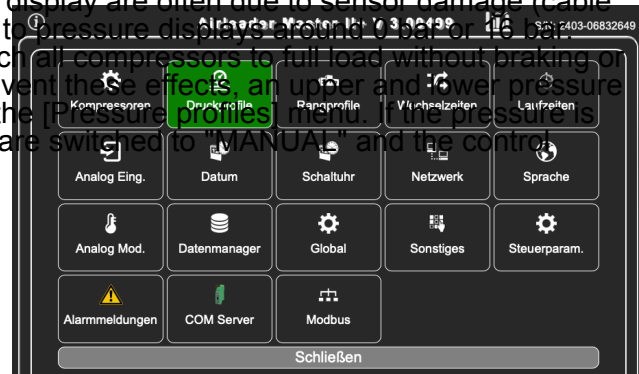


Fig.: Web interface (touchscreen interface equivalent)

Pressure value from which the control automatically switches to "MANUAL" mode:

Pmin – pressure difference to be entered1 = lower limit pressure

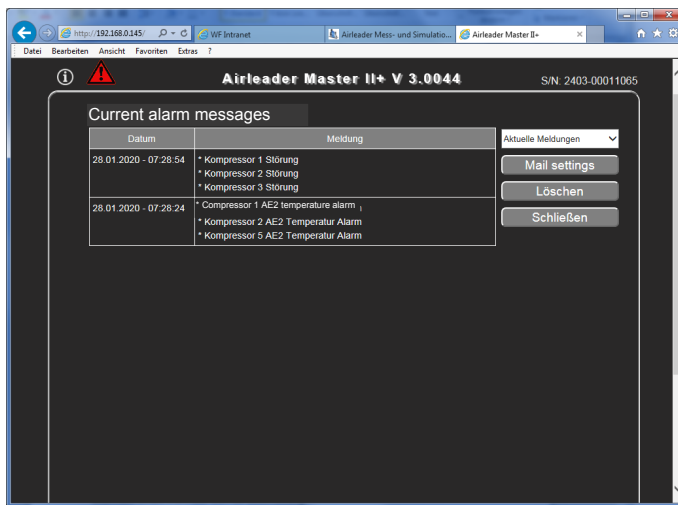
Pmax + pressure difference to be entered2 = upper limit pressure

If the pressure difference to be entered = 0.0 bar, the system does not switch to "MANUAL".

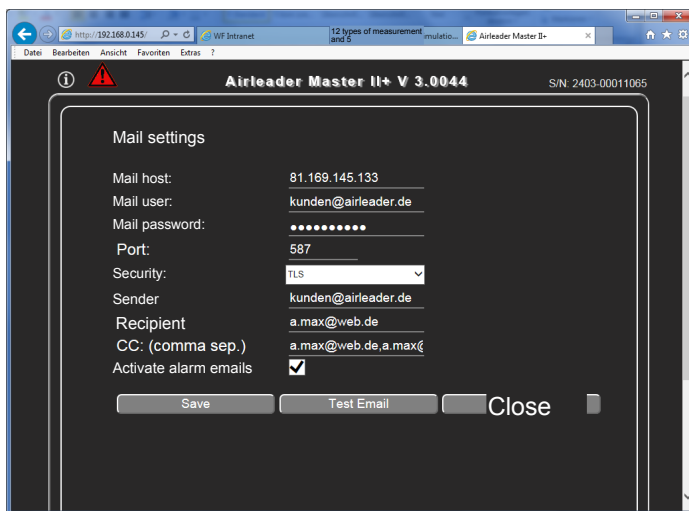
This means that separate activations are possible for the upper and lower limit pressure.

Alarm messages:

All alarm/fault messages are now recorded internally by the controller as well as in the web visualisation, and are stored in a monthly report.



Configure email delivery under Mail settings. The controller must be able to connect to an SMTP server.



Email settings are only possible via the web interface.