

Claims

1. System for providing pre-conditioned air to an aircraft on the ground comprising:
5 a ground air conditioning unit ~~(30)~~ configured to produce pre-conditioned air;
a control module ~~(46)~~ controlling operation of said air conditioning unit ~~(30)~~;
an air hose ~~(32)~~ having a first end ~~(33₁)~~ in communication with a pre-conditioned air outlet ~~(35)~~ of said air conditioning unit ~~(30)~~ and a second end ~~(33₂)~~ with a connector ~~(100)~~ for connection to an aircraft ~~(10)~~ on the ground;
10 wherein pressure sensing means ~~(102)~~ providing pressure information to said control module ~~(46)~~ are arranged as to allow pressure monitoring of the flow of pre-conditioned air in the vicinity of the second end ~~(33₂)~~ of said air hose; and
wherein said pressure sensing means comprises at least one pressure sensor, preferably at least two pressure sensors, arranged in said connector.
- 15 2. System according to claim 1, wherein said air conditioning unit ~~(30)~~ operates on the air-cycle principle and is preferably fed with remotely produced compressed air.
3. System according to claim 1 or 2, wherein said air conditioning unit ~~(30)~~ is adapted to deliver sub-freezing pre-conditioned air into the aircraft, preferably
20 down to about -25°C.
4. System according to claim 1, 2 or 3, wherein said control unit ~~(46)~~ is configured to stop the production or to reduce the mass flow of pre-conditioned air when said pressure signal indicates that the measured pressure has reached or exceeds a threshold corresponding to a maximum allowable
25 pressure.
5. System according to any one of the preceding claims, wherein said control unit ~~(46)~~ is configured to disable ~~unable~~ the production or reduce the mass flow of pre-conditioned air when said pressure information indicates that the ~~meas-~~ measured

ured pressure has reached or dropped below a threshold corresponding to a minimum pressure.

6. System according to any one of the preceding claims, wherein said control unit (46) is configured in order to output pre-conditioned air at a temperature above 0°C, preferably above +2°C, when said pressure information indicates that the measured pressure has reached or dropped below a threshold corresponding to a minimum pressure.

7. System according to any one of the preceding claims, wherein said control unit regulates (46) the output flow of pre-conditioned air on the basis of said pressure information and of a target pressure.

~~8. System according to any one of the preceding claims, wherein said pressure sensing means comprises at least one pressure sensor (102), preferably at least two pressure sensors (102), so as to enable redundant pressure measurement.~~

~~9. System according to any one of the preceding claims, wherein said at least one pressure sensor (102), respectively said at least two pressure sensors, is/are arranged in said connector (100).~~

~~10.8. System according to any one of the preceding claims claim 8 or 9, wherein said at least one pressure sensor (102) is/are arranged no further than 0.5 m from said second end (33₂), preferably no more than 0.3 m.~~

~~11.9. System according to any one of the preceding claims claims 8, 9 or 10, wherein each pressure sensor (102) is connected to a common ring pipe (116) and at least two pipes (112) extend from the ring pipe (116) to an open port (110) inside the connector wall (104), at the periphery of the flow of preconditioned air flow.~~

~~12.10. System according to any one of the preceding claims, wherein said pressure information comprises static pressure information.~~

~~13.11. System according to any one of the preceding claims, wherein said control unit further takes into account information on the temperature inside an aircraft mixing chamber, and preferably information on the temperature inside~~

the cabin of the aircraft.

5 44.12. System according to any one of the preceding claims, wherein said control unit stores a map of operating modes, including maximum allowable pressure and minimum pressure, that correspond to respective aircraft types and model year, these parameters being taken into account for controlling operation of said air conditioning unit.

10 45.13. System according to any one of the preceding claims, wherein said control unit is configured to received from said aircraft, through wired or wireless connection, information regarding one or more of: aircraft mixing chamber temperature, aircraft mixing chamber pressure, aircraft type, aircraft model year and aircraft cabin temperature.

 46.14. Use of the system according to any one of the preceding claims for supplying pre-conditioned air to an aircraft on the ground.