APPENDIX A   COMPRESSOR WITH FREQUENCY CONVERTER

WITH ADJUSTABLE MAXIMUM AND MINIMUM SPEED

CONNECTION

ANALOG INPUT

A IN 7:   Signal to the CELLmatic with the current rotating speed.
4 mA corresponds to setpoint value "Revolutions – 4mA" and
20 mA is the "Max. Revolutions".

ANALOG OUTPUT

A OUT 0:   Signal from the CELLmatic to the frequency converter with the desired speed of rotation. 4 mA is the minimum speed of rotation and 20 mA is the maximum speed of rotation.

FUNCTIONAL DESCRIPTION

AUTOMATIC

When the compressor is started, it will start at its minimum speed of rotation. (4mA). The capacity will then begin to increase. If there is a need for more refrigeration and the capacity reaches 100%, the compressor's speed of rotation will be regulated upwards. If the refrigeration requirement is so great that the speed of rotation of the compressor reaches its maximum speed, a start signal will be sent to a subsequent slave. If the refrigeration requirement is reduced, the speed of rotation will be reduced first, after which the capacity will be reduced. The slave is stopped according to the same condition as for operations in which this special function is not implemented.

MANUAL

When manual operation is selected, the compressor will run at the speed of rotation chosen for manual operation. When the compressor is started, the output at A OUT 0 will be regulated according to the input from A IN 6 in such a manner that the input reaches the speed of rotation which is chosen for the compressor in manual operation.

OPERATING INSTRUCTIONS

INDICATIONS

An "S" will appear in the report and status line when this special function is implemented. When the speed of rotation is regulated up or down, "S+" will indicate an increase in speed and "S-" will indicate a reduction in speed.
The current rotating speed can be read off in the third line of the start-up display.

Start-up screen:

```
                         27-10-98  14:07:55
F6   CLA       :P-suction    (C)      0.0 C
F5   SETUP. 1 :Output        (%)      0.0 %
F4   SETPOINT :Motor r.p.m.            0 rpm
F3   MANUAL    :T-oil compr. (C)      0.0 C
F2   DISPLAY 2:P-discharge   (B)     0.00 Bar
F1   STOP      :      S
```

PARAMETER

The screen "Setpunkt R – U" can expand and will be named "Setpunkt Q – U".

Setpoint Q-U:

```
                         27-10-98  14:07:55
     SETPOINT//SETP. Q-U/
F6   SETP. Q  :Motor revolution setpoints
F5   SETP. R  :Refigerant         Unit data
F4   SETP. S  :Vi-ratio           Slide valve
F3   SETP. T  :Boostersignal Setpoint P-suc 2
F2   SETP. U  :Bypass        Slave start/stop
F1   STOP     :
```

Most of the parameters for the control of the frequency converter can be found on the "Setpoint Q" screen:

Setpoint Q:

```
                         27-10-98  14:07:55
     SETPOINT//SETP. Q-U/SETP. Q/
F6   NEW (F6) :Max. Revolutions    3600 rpm
F5   NEW (F5) :revolutions -4mA       0 rpm
F4   NEW (F4) :Min. Revolutions    1800 rpm
F3   NEW (F3) :Revolutions Man.    1800 rpm
F2   ACC TIME :Acceleration time
F1   STOP     :
```

1. Line F6: The maximum speed of rotation, which matches to 20 mA for the analog in- and output.
2. Line F5: The speed of rotation, if there are 4 mA on the input.
3. Line F4: The minimum speed of rotation, which matches to 4 mA for the analog output.
4. Line F3: The speed of rotation which is used for manual operation.
5. Line F2: Change to the picture with acceleration times for the freqency.

On the picture "Acceleration Times" are the parameter times for the freqency converter:
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Acceleration Times:

```
                        27-10-98  14:07:55
       SETPOINT//SETP. Q-U/SETP. Q/ACC TIME/
F6  |  CLA      :
F5  |  NEW (F5) :RPM. Max to Min      300 sec
F4  |  NEW (F4) :RPM. Min to Max      600 sec
F3  |           :
F2  |           :
F1  |  STOP     :
```

1. Line F5:   The time it will take the rotating speed to go from maximum to minimum.
2. Line F4:   The time it will take the rotating speed to go from minimum til maximum