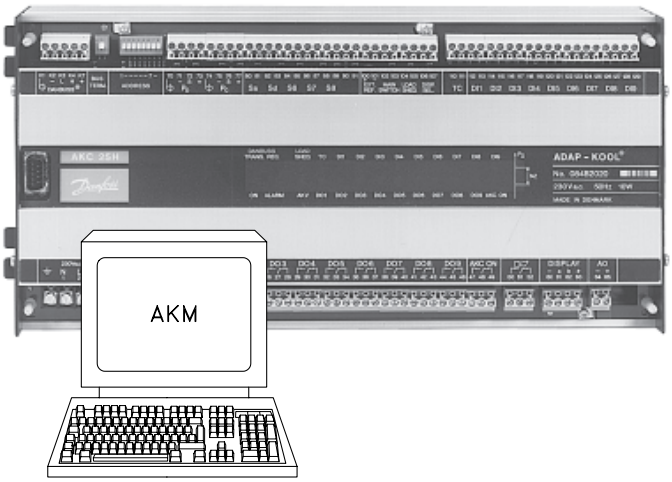
Menu operation via AKM

ADAP-KOOL®



Compressor Pack Controller
AKC 25H3

Software version 1.0x

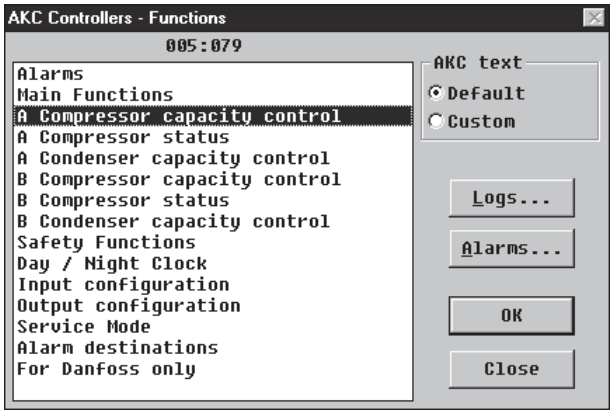
Menu list

This menu function can be used together with system software type AKM. The description is divided up into function groups that can be displayed on the PC screen. Within each group it is now possible to show the measured values, or settings. Regarding the use of AKM, reference is made to the AKM Manual.

Application

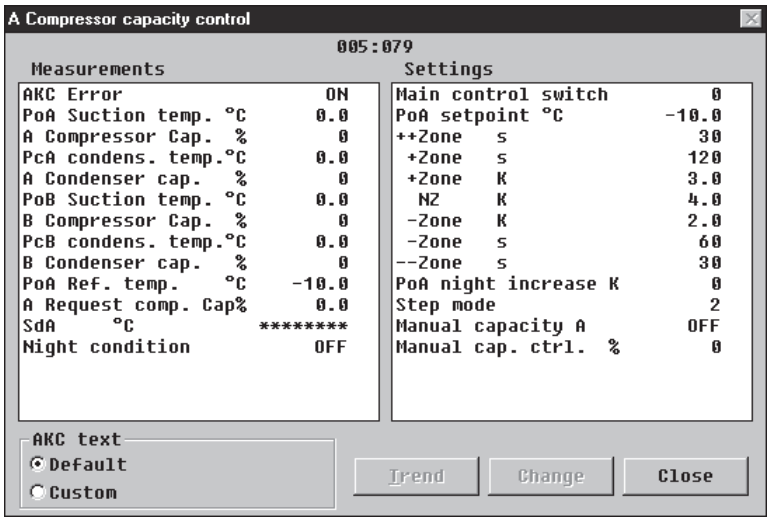
This menu operation (dated February 2000), applies to controller type AKC 25H3, code number 084B2039 with programme version 1.0x.

Function groups



The operation is divided up into several function groups. When a selection has been made, push "OK", and you may continue to the next display. By way of example, "*A Compressor capacity control*" has been selected here.

From the measure line the different values can be read. The values are constantly updated.
In the list of settings the set values can be seen. If a setting has to be changed, select the parameter and proceed via "OK".

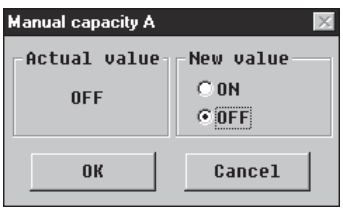


Measurements

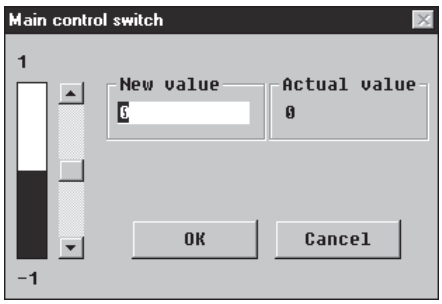
The various measurements can be read directly. If a graphic display of the measurements is required, up to eight of them can be shown. Select the required measurements and push "Trend".

Settings

There are four kinds of settings, ON/OFF settings, settings with a variable value, time settings and "reset alarms".



Set the required value and push "OK"



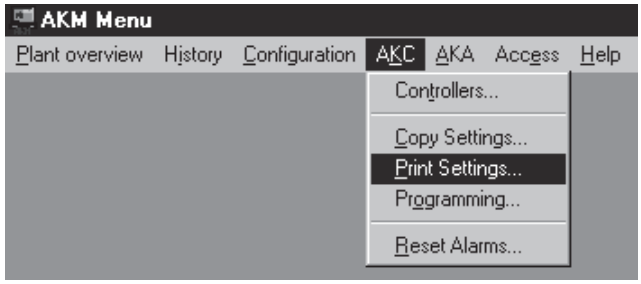
Enter the new value or move the sliding scale up or down. The new value will apply, when "OK" is pushed.

Go through the individual functions one by one and make the required settings. When settings have been made for one controller, the set values may be used as basis in the other controllers *of the same type* and *with the same software version*. Copy the settings by using the copy settings function in the AKM programme, and adjust subsequently any settings where there are deviations.

NB! If a list is required for noting down the individual settings, a printout can be made of it with a function in the AKM programme. Read the next section, "Documentation".

Documentation

Documentation of the settings of the individual controllers can be made with the print function in the AKM programme. Select the controller for which documentation of the settings is required and select the "Print Settings" function (cf. also the AKM Manual).



Functions

Shown below are function groups with corresponding measurements and settings. A printout of the given settings can be made using the AKM function "Print Settings" (see above).

Alarms

See page 14.

Main Functions

Measurements	AKC Error	When "ON", there is an alarm message. See page 14.
	P0A Suction temp °C	Suction pressure in °C. (Measured with the pressure transmitter on the P0A input)
	A Compressor Cap.%	Cut-in compressor capacity in % (of total capacity)
	PcA condens. temp. °C	Discharge pressure in °C. (measured with the pressure transmitter on the PcA input)
	A Condenser cap. %	Cut-in condenser capacity in %
	P0B Suction temp °C	Suction pressure in °C.(measured with the pressure transmitter on the P0B input)
	B Compressor Cap.%	Cut-in compressor capacity in % (of total capacity)
	PcB condens. temp. °C	Discharge pressure in °C. (measured with the pressure transmitter on the PcB input)
	B Condenser cap. %	Cut-in condenser capacity in %
	A Refrigerant type R	Reading of set refrigerant type. Group A
	B Refrigerant type R	Reading of set refrigerant type. Group B
Settings	Main control switch	Main switch: 1: Regulation 0:Controller stopped -1:Service function
	Language	Selection of language. 0: English 1: German 3: Danish 2: Franch 4: Spanish NB! If this setting is changed, another "Upload" must be made of the controller's data for the AKM programme. You do it this way: - Select one of the available languages. - Close the menu - Proceed to menu "Configuration" - "Advanced Configuration" - "Delete description file" - Push file type "Default" - Select controller's code number and software version - Push "OK" - Proceed to menu "Configuration" - "Upload" - Complete the fields "Network", "Net configuration" and "AKC description" - Push "OK" Texts will now be obtained from the controller in the required language.

	Mains frequency Hz	Set the network frequency to 50 or 60 Hz
	A Refrigerant type B Refrigerant type	Refrigerant selection:0: No refrigerant selection 1: R12 2: R22 3: R134a 4: R502 5: R717 (ammonia) 6: R13 7: R13b1 8: R23 9: R500 10: R503 11: R114 12: R142b 13: User defined 14: R32 15: R227 16: R401A 17: R507 18: R402A 19: R404A 20: R407C 21: R407A 22: R407B 23: R410A

A Compressor capacity control

Measurements	AKC Error	When "ON", there is an alarm message. See page 14.
	P0A Suction temp °C	Suction pressure in °C. (Measured with the pressure transmitter on the P0A input)
	A Compressor Cap.%	Cut-in compressor capacity in % (of total capacity)
	PcA condens. temp. °C	Discharge pressure in °C. (measured with the pressure transmitter on the PcA input)
	A Condenser cap. %	Cut-in condenser capacity in %
	P0B Suction temp °C	Suction pressure in °C.(measured with the pressure transmitter on the P0B input)
	B Compressor Cap.%	Cut-in compressor capacity in % (of total capacity)
	PcB condens. temp. °C	Discharge pressure in °C. (measured with the pressure transmitter on the PcB input)
	B Condenser cap. %	Cut-in condenser capacity in %
	P0A Ref. temp. °C	Suction pressure reference (incl. external reference signal, if any)
	A Request comp.Cap%	Reference for compressor capacity (deviations may be due to time delays)
	SdA °C	Discharge gas temperature measured with the temperature sensor on the SdA input
	Night condition	Status of night setback function ON: An increase of the evaporating pressure is permitted OFF: Normal situation
Settings	Main control switch	Main switch: 1: Regulation 0:Controller stopped -1:Service function
	P0A setpoint °C	Setting of required suction pressure in °C
	++Zone s	Time delay between step cut-ins in the regulation band over the "+Zone band" Set in seconds
	+Zone s	Time delay between step cut-ins in the regulation band over the neutral zone
	+Zone K	Regulation band over the neutral zone
	NZ K	Neutral zone for suction pressure
	-Zone K	Regulation band under the neutral zone
	-Zone s	Time delay between step cut-outs in the regulation band under the neutral zone Set in seconds
	--Zone s	Time delay between step cut-outs in the regulation band under the "-Zone band" Set in seconds
	P0A night increase K	Displacement value for suction pressure in connection with an active night setback signal (set in Kelvin)
	Step mode	Cut-in and cut-out sequence for compressors 1: Sequential (first in, last out) 2: Cyclic (equalisation of run time)
	Manual capacity A	Forced control function OFF: No forced control ON: There may be forced control of the compressor capacity
	Manual cap. ctrl. %	Forced control function Manual setting of compressor capacity The value is in % of total capacity controlled by the controller

A Compressor status

Measurements	AKC Error	When "ON", there is an alarm message. See page 14.
	P0A Suction temp °C	Suction pressure in °C. (Measured with the pressure transmitter on the P0A input)
	A Compressor Cap.%	Cut-in compressor capacity in % (of total capacity)
	PcA condens. temp. °C	Discharge pressure in °C. (measured with the pressure transmitter on the PcA input)
	A Condenser cap. %	Cut-in condenser capacity in %
	P0B Suction temp °C	Suction pressure in °C.(measured with the pressure transmitter on the P0B input)
	B Compressor Cap.%	Cut-in compressor capacity in % (of total capacity)
	PcB condens. temp. °C	Discharge pressure in °C. (measured with the pressure transmitter on the PcB input)
	B Condenser cap. %	Cut-in condenser capacity in %
	1A actual capacity %	Actual cut-in capacity on this compressor
	1A actual runhours h	Compressor's aggregate run time in hours (Zero-setting of the value can be performed under "Output Configuration"
	1A No. of starts/24h	Number of compressor starts during the past 24 hours
	2 …	As above for compressor no. 2 to 9
Settings	Main control switch	Main switch: 1: Regulation 0:Controller stopped -1:Service function
	AKA14/S9 select	The readout is defined with the following setting: 1: P0A 2: P0A reference 3: PcA 4: PcA reference 5: P0B 6: P0B reference 7: PcB 8: PcB reference 9: Selection by means of a resistance decade on the S9 input

A Condenser capacity control

Measurements	AKC Error	When "ON", there is an alarm message. See page 14.
	P0A Suction temp °C	Suction pressure in °C. (Measured with the pressure transmitter on the P0A input)
	A Compressor Cap.%	Cut-in compressor capacity in % (of total capacity)
	PcA condens. temp. °C	Discharge pressure in °C. (measured with the pressure transmitter on the PcA input)
	A Condenser cap. %	Cut-in condenser capacity in %
	P0B Suction temp °C	Suction pressure in °C.(measured with the pressure transmitter on the P0B input)
	B Compressor Cap.%	Cut-in compressor capacity in % (of total capacity)
	PcB condens. temp. °C	Discharge pressure in °C. (measured with the pressure transmitter on the PcB input)
	B Condenser cap. %	Cut-in condenser capacity in %
	PcA Ref. temp. °C	Discharge pressure reference in °C
	A Request cond. cap%	Reference for condenser capacity
	Sout °C	Temperature measured by Sout sensor (Air temperature at condenser inlet)
Settings	Main control switch	Main switch: 1: Regulation 0:Controller stopped -1:Service function
	PcA reference mode	Definition of condenser regulation 1: Reference = set reference “PcA set point” 2: Reference is changed as a function of the Sout signal and application selection
	PcA setpoint °C	Setting of required discharge pressure in °C
	++Zone s	Time delay between step cut-ins in the regulation band over the "+Zone band"
	+Zone s	Time delay between step cut-ins in the regulation band over the neutral zone
	+Zone K	Regulation band over the neutral zone
	NZ K	Neutral zone for discharge pressure in K
	-Zone K	Regulation band under the neutral zone
	-Zone s	Time delay between step cut-outs in the regulation band under the neutral zone
	--Zone s	Time delay between step cut-outs in the regulation band under the "-Zone band"
	A dimensioning tm K	Mean temperature differential across the condenser at max. load (tm differen tial at max. load) (It is the temperature differential between air- and condensing temperature)

	Max. Ref. for PcA °C	Max. permissible condensing pressure reference
	Min. Ref. for PcA °C	Min. permissible condensing pressure reference
	Manual capacity A	Forced control function OFF: No forced control ON: There may be forced control of the condenser capacity
	Manual cap. ctrl. %	Forced control function Manual setting of condenser capacity The value is in % of total capacity

B Compressor capacity control

Measurements	AKC Error	When "ON", there is an alarm message. See page 14.
	P0A Suction temp °C	Suction pressure in °C. (Measured with the pressure transmitter on the P0A input)
	A Compressor Cap.%	Cut-in compressor capacity in % (of total capacity)
	PcA condens. temp. °C	Discharge pressure in °C. (measured with the pressure transmitter on the PcA input)
	A Condenser cap. %	Cut-in condenser capacity in %
	P0B Suction temp °C	Suction pressure in °C.(measured with the pressure transmitter on the P0B input)
	B Compressor Cap.%	Cut-in compressor capacity in % (of total capacity)
	PcB condens. temp. °C	Discharge pressure in °C. (measured with the pressure transmitter on the PcB input)
	B Condenser cap. %	Cut-in condenser capacity in %
	P0B Ref. temp. °C	Suction pressure reference (incl. external reference signal, if any)
	B Request comp.Cap%	Reference for compressor capacity (deviations may be due to time delays)
	SdB °C	Discharge gas temperature measured with the temperature sensor on the SdB input
	Night condition	Status of night setback function ON: An increase of the evaporating pressure is permitted OFF: Normal situation
Settings	Main control switch	Main switch: 1: Regulation 0:Controller stopped -1:Service function
	P0B setpoint °C	Setting of required suction pressure in °C
	++Zone s	Time delay between step cut-ins in the regulation band over the "+Zone band" Set in seconds
	+Zone s	Time delay between step cut-ins in the regulation band over the neutral zone
	+Zone K	Regulation band over the neutral zone
	NZ K	Neutral zone for suction pressure
	-Zone K	Regulation band under the neutral zone
	-Zone s	Time delay between step cut-outs in the regulation band under the neutral zone Set in seconds
	--Zone s	Time delay between step cut-outs in the regulation band under the "-Zone band" Set in seconds
	P0B night increase K	Displacement value for suction pressure in connection with an active night setback signal (set in Kelvin)
	Step mode	Cut-in and cut-out sequence for compressors 1: Sequential (first in, last out) 2: Cyclic (equalisation of run time)
	Manual capacity B	Forced control function OFF: No forced control ON: There may be forced control of the compressor capacity
	Manual cap. ctrl. %	Forced control function Manual setting of compressor capacity The value is in % of total capacity controlled by the controller

B Compressor status

Regulation B is not to be set if application type = 1 is selected (in the menu "input configuation")

Measurements	AKC Error	When "ON", there is an alarm message. See page 14.
	P0A Suction temp °C	Suction pressure in °C. (Measured with the pressure transmitter on the P0A input)
	A Compressor Cap.%	Cut-in compressor capacity in % (of total capacity)
	PcA condens. temp. °C	Discharge pressure in °C. (measured with the pressure transmitter on the PcA input)
	A Condenser cap. %	Cut-in condenser capacity in %
	P0B Suction temp °C	Suction pressure in °C.(measured with the pressure transmitter on the P0B input)
	B Compressor Cap.%	Cut-in compressor capacity in % (of total capacity)
	PcB condens. temp. °C	Discharge pressure in °C. (measured with the pressure transmitter on the PcB input)
	B Condenser cap. %	Cut-in condenser capacity in %
	1B actual capacity %	Actual cut-in capacity on this compressor
	1B actual runhours h	Compressor's aggregate run time in hours (Zero-setting of the value can be performed under "Output Configuration"
	1B No. of starts/24h	Number of compressor starts during the past 24 hours
	2 …	As above for compressor no. 2 to 9
Settings	Main control switch	Main switch: 1: Regulation 0:Controller stopped -1:Service function

B Condenser capacity control

Condenser regulation B is not to be set if application type = 3 or 4 is selected (in the menu "input configuation")

Measurements	AKC Error	When "ON", there is an alarm message. See page 14.
	P0A Suction temp °C	Suction pressure in °C. (Measured with the pressure transmitter on the P0A input)
	A Compressor Cap.%	Cut-in compressor capacity in % (of total capacity)
	PcA condens. temp. °C	Discharge pressure in °C. (measured with the pressure transmitter on the PcA input)
	A Condenser cap. %	Cut-in condenser capacity in %
	P0B Suction temp °C	Suction pressure in °C.(measured with the pressure transmitter on the P0B input)
	B Compressor Cap.%	Cut-in compressor capacity in % (of total capacity)
	PcB condens. temp. °C	Discharge pressure in °C. (measured with the pressure transmitter on the PcB input)
	B Condenser cap. %	Cut-in condenser capacity in %
	PcB Ref. temp. °C	Discharge pressure reference in °C
	B Request cond. cap%	Reference for condenser capacity
	Sout °C	Temperature measured by Sout sensor (Air temperature at condenser inlet)
Settings	Main control switch	Main switch: 1: Regulation 0:Controller stopped -1:Service function
	PcB reference mode	Definition of condenser regulation 1: Reference = set reference “PcB set point” 2: Reference is changed as a function of the Sout signal and application selection
	PcB setpoint °C	Setting of required discharge pressure in °C
	++Zone s	Time delay between step cut-ins in the regulation band over the "+Zone band"
	+Zone s	Time delay between step cut-ins in the regulation band over the neutral zone
	+Zone K	Regulation band over the neutral zone
	NZ K	Neutral zone for discharge pressure in K
	-Zone K	Regulation band under the neutral zone
	-Zone s	Time delay between step cut-outs in the regulation band under the neutral zone
	--Zone s	Time delay between step cut-outs in the regulation band under the "-Zone band"
	B dimensioning tm K	Mean temperature differential across the condenser at max. load (tm differen tial at max. load) (It is the temperature differential between air- and condensing temperature)
	Max. Ref. for PcB °C	Max. permissible condensing pressure reference
	Min. Ref. for PcB °C	Min. permissible condensing pressure reference
	Manual capacity B	Forced control function OFF: No forced control ON: There may be forced control of the condenser capacity
	Manual cap. ctrl. %	Forced control function Manual setting of condenser capacity The value is in % of total capacity

Safety Functions

Measurements	AKC Error	When "ON", there is an alarm message. See page 14.
	P0A Suction temp °C	Suction pressure in °C. (Measured with the pressure transmitter on the P0A input)
	A Compressor Cap.%	Cut-in compressor capacity in % (of total capacity)
	PcA condens. temp. °C	Discharge pressure in °C. (measured with the pressure transmitter on the PcA input)
	A Condenser cap. %	Cut-in condenser capacity in %
	P0B Suction temp °C	Suction pressure in °C.(measured with the pressure transmitter on the P0B input)
	B Compressor Cap.%	Cut-in compressor capacity in % (of total capacity)
	PcB condens. temp. °C	Discharge pressure in °C. (measured with the pressure transmitter on the PcB input)
	B Condenser cap. %	Cut-in condenser capacity in %
	SdA °C	Discharge gas temperature measured with the temperature sensor on the SdA input
	SdB °C	Discharge gas temperature measured with the temperature sensor on the SdB input
Settings	Main control switch	Main switch: 1: Regulation 0:Controller stopped -1:Service function
	PcA Max. limit °C	Max. value of discharge pressure in °C (If the value is exceeded, the entire compressor capacity will be cut out) (At 3 K under PcA max. the entire condenser capacity will be cut in and the compressor capacity will be reduced)
	P0A Min. limit °C	Min. value of suction pressure in °C (If the value becomes less, the entire compressor capacity will be cut out)
	SdA Max. limit °C	Max. value of discharge gas temperature (If the value is exceeded, the entire compressor capacity will be but out and the entire condenser capacity will be cut in)
	Restart time m	Time delay before restart (Applies to the functions: "Sd_ Max", "Pc_ Max" and "P0_ Min")
	PcB Max. limit °C	Max. value of discharge pressure in °C (If the value is exceeded, the entire compressor capacity will be cut out) (At 3 K under PcB max. the entire condenser capacity will be cut in and the compressor capacity will be reduced)
	P0B Min. limit °C	Min. value of suction pressure in °C (If the value becomes less, the entire compressor capacity will be cut out)
	SdB Max. limit °C	Max. value of discharge gas temperature (If the value is exceeded, the entire compressor capacity will be but out and the entire condenser capacity will be cut in)

Day / Night Clock

Measurements	AKC Error	When "ON", there is an alarm message. See page 14.
	P0A Suction temp °C	Suction pressure in °C. (Measured with the pressure transmitter on the P0A input)
	A Compressor Cap.%	Cut-in compressor capacity in % (of total capacity)
	PcA condens. temp. °C	Discharge pressure in °C. (measured with the pressure transmitter on the PcA input)
	A Condenser cap. %	Cut-in condenser capacity in %
	P0B Suction temp °C	Suction pressure in °C.(measured with the pressure transmitter on the P0B input)
	B Compressor Cap.%	Cut-in compressor capacity in % (of total capacity)
	PcB condens. temp. °C	Discharge pressure in °C. (measured with the pressure transmitter on the PcB input)
	B Condenser cap. %	Cut-in condenser capacity in %
	Night condition	Status of night setback function ON: an increase of the evaporating pressure is permitted OFF: Normal situation
Settings	Main control switch	Main switch: 1: Regulation 0:Controller stopped -1:Service function
	Day/Night ctrl. mode	Define day/night functions with following settings 0: No change 1: Use signal on the inlet “Night” 2: Use signal from the above mentioned time table 3: Use signal from the mastergateway’s override function
	Monday - Day h	Time table for displacement of evaporating pressure on Mondays. End of night setback (normal suction pressure) At setting = 0 there is no displacement this day
	Monday - Night h	Time table continued: Start (of night setback) when the suction pressure is changed with setting "P0_night increase K". At setting =0 there is no displacement this day. If day and night settings are identical, or if night comres before day, there will be a different function. See functional description.
	Tuesday - Day h	As above, Tuesdays
	Tuesday - Night h	As above, Tuesdays
	Wednesday - Day h	As above, Wednesdays
	Wednesday - Night h	As above, Wednesdays
	Thursday - Day h	As above, Thursdays
	Thursday - Night h	As above, Thursdays
	Friday - Day h	As above, Fridays
	Friday - Night h	As above, Fridays
	Saturday - Day h	As above, Saturdays
	Saturday - Night h	As above, Saturdays
	Sunday - Day h	As above, Sundays
	Sunday - Night h	As above, Sundays

Input configuration

Measurements	AKC Error	When "ON", there is an alarm message. See page 14.
	P0A Suction temp °C	Suction pressure in °C. (Measured with the pressure transmitter on the P0A input)
	A Compressor Cap.%	Cut-in compressor capacity in % (of total capacity)
	PcA condens. temp. °C	Discharge pressure in °C. (measured with the pressure transmitter on the PcA input)
	A Condenser cap. %	Cut-in condenser capacity in %
	P0B Suction temp °C	Suction pressure in °C.(measured with the pressure transmitter on the P0B input)
	B Compressor Cap.%	Cut-in compressor capacity in % (of total capacity)
	PcB condens. temp. °C	Discharge pressure in °C. (measured with the pressure transmitter on the PcB input)
	B Condenser cap. %	Cut-in condenser capacity in %
	Configuration locked	Configuration lock. ON/OFF
Settings	**Settings can only be made when the MAIN SWITCH input is cut out.**	
	Main control switch	Main switch: 1: Regulation 0:Controller stopped -1:Service function
	Appliation Mode	The application type is defined with the following setting: 1: One compressor groups. One condenser group (group A is used) 2: Two separate groups 3: Two compressor groups. One common condenser with two separate pas sages. Regulation is performed with condenser group A. Both PcA and PcB are used 4: Two compressor groups. One common condenser. Regulation is performed with condenser group A.
		Setting of alarm inputs There are three settings for each input. Define first what the input is to register. Next, the information that is to belong to the input. And finally, a time delay.
	DI1 Type of device	Alarm input DI 1 0: Input not used 1: Input registers the A-compressors' safety circuit Compressors no. is selected in the next menu 2: Input registers the A-condensers' safety circuit Condensers no. i selected in the next menu 3: Input registers the B-compressors' safety circuit Compressors no. is selected in the next menu 4: Input registers the B-condensers' safety circuit Condensers no. i selected in the next menu 5: Input registers all A-compressors' safety circuit (no value to be set in the next menu) 6: Input registers all B-compressors' safety circuit (no value to be set in the next menu) 7: Other alarm monitoring.
	DI …	As above for DI 2 to DI 9
	DI1 Device No.	Type = 1 and 3: (see above): Select the compressor no. Type = 2 and 4: (see above): Select the condenser no.
	DI …	As above for DI 2 to DI 9
	DI1 Alarm delay m	Time delay from the alarm is registered until executed
	DI …	As above for DI 2 to DI 9

Output Configuration

Measurements	AKC Error	When "ON", there is an alarm message. See page 14.
	P0A Suction temp °C	Suction pressure in °C. (Measured with the pressure transmitter on the P0A input)
	A Compressor Cap.%	Cut-in compressor capacity in % (of total capacity)
	PcA condens. temp. °C	Discharge pressure in °C. (measured with the pressure transmitter on the PcA input)
	A Condenser cap. %	Cut-in condenser capacity in %
	P0B Suction temp °C	Suction pressure in °C.(measured with the pressure transmitter on the P0B input)
	B Compressor Cap.%	Cut-in compressor capacity in % (of total capacity)
	PcB condens. temp. °C	Discharge pressure in °C. (measured with the pressure transmitter on the PcB input)
	B Condenser cap. %	Cut-in condenser capacity in %
	Configuration locked	Configuration lock. ON/OFF
Settings	**Settings can only be made when the MAIN SWITCH input is cut out.**	
	Main control switch	Main switch: 1: Regulation 0:Controller stopped -1:Service function - Regulation with identical capacity on the individual relays - The condensers must either be controlled completely by means of steps, or completely by means of speed regulation. A combination is not possible. Step coupling with a relay module may however be combined with DO outputs.
	DO1 Type of device	Relay outputs are used for: 0: Not used 1: Compressor A/ compressor steps A 2: Condenser A/ condenser steps A 3: Compressor B/ compressor steps B 4: Condenser B/ condenser steps B
	DO…	As above for DO 2 to DO 9
	DO1 Device No.	Set the number of the compressor or condenser which is connected to the actual relay - If several relay outputs are set with the same number, the subsequent relay outputs will be regarded as belonging unloaders/steps
	DO…	As above for DO 2 to DO 9
	DO1 Recycle time m	Minimum period of time between two successive starts (If the output controls an unloader or a condenser step, the setting will be set at zero).
	DO…	As above for DO 2 to DO 9
	DO1 Min. ON-time m	Minimum duration of ON period (If the output controls an unloader or a condenser step, the setting will be set at zero).
	DO…	As above for DO 2 to DO 9
	DO1 Accumulated ON h	Reading and adjustment, if applicable, of hourmeter
	DO…	As above for DO 2 to DO 9
	AO Type of device	The output is defined with the following setting 0: The output is not used 1: Step coupling of condenser group A via relay module 2: Speed regulation of all fans on condenser group A 3: Step coupling of condenser group B via relay module 4: Speed regulation of all fans on condenser group B
	No. of fan steps	If settings 1 or 3 above have been selected and the signal is to be connected to one or two relay modules type EKC 331, then the setting must correspond to the number of relays used (i.e. 1, 2, 3, 4, 6 or 8)
	Fan speed lim.night %	If definition 2 or 4 above has been selected, the fan speed can be lowered during night operation

Service Mode

Measurements	AKC Error	When "ON", there is an alarm message. See page 14.
	P0A Suction temp °C	Suction pressure in °C. (Measured with the pressure transmitter on the P0A input)
	A Compressor Cap.%	Cut-in compressor capacity in % (of total capacity)
	PcA condens. temp. °C	Discharge pressure in °C. (measured with the pressure transmitter on the PcA input)
	A Condenser cap. %	Cut-in condenser capacity in %
	P0B Suction temp °C	Suction pressure in °C.(measured with the pressure transmitter on the P0B input)
	B Compressor Cap.%	Cut-in compressor capacity in % (of total capacity)
	PcB condens. temp. °C	Discharge pressure in °C. (measured with the pressure transmitter on the PcB input)
	B Condenser cap. %	Cut-in condenser capacity in %
	P0A Bar	Suction pressure (measured with P0A pressure transmitter)
	PcA Bar	Discharge pressure (measured with PcA pressure transmitter)
	P0B Bar	Suction pressure (measured with P0B pressure transmitter)
	PcB Bar	Discharge pressure (measured with PcB pressure transmitter)
	SdA °C	Discharge gas temperature (measured with SdA temperature sensor)
	SdB °C	Discharge gas temperature (measured with SdB temperature sensor)
	S6 °C	Temperature measurement (performed with S6 temperature sensor)
	S7 °C	Temperature measurement (performed witht S7 temperature sensor)
	S8 °C	Temperature measurement (performed witht S8 temperature sensor)
	S9 °C/AKA 14	Temperature measurement (performed witht S9 temperature sensor) Asterisks if a switch is used on the input
	Sout °C	Temperature measurement (performed witht Sout temperature sensor)
	Main Switch Input	Status of "Main Switch" input. In pos. "OFF" the regulation is stopped by force
	Night Input	Status of input Night. In pos. "ON" the signal is OK, and the controller can regulate (= night operation)
	DI 1 Status	Status of input DI 1. In pos. "ON" the signal is OK, and the controller can regulate
	DI …	As above for DI 2 to DI 9
	AKC ON A Relay state	Status of relay output "AKC ON A" OFF: Forced closing of all AKV valves ON: Normal operation of AKC controllers
	AKC ON B Relay state	Status of relay output "AKC ON B" OFF: Forced closing of all AKV valves ON: Normal operation of AKC controllers
	DO1 Relay state	Status of relay output DO 1. In pos. "ON" the relay is operated
	DO …	As above for DO 2 to DO 9
	Alarm Relay state	Status of alarm output. In pos. "ON" the relay is operated, and there is no alarm
	AO Voltage signal V	Status of "AO" output (analog signal 0 - 10 V d.c.)
Settings	Main control switch	Main switch: 1: Regulation 0:Controller stopped -1:Service function
	Manual control mode	ON: Manual control permitted PLEASE NOTE! No monitoring When manual setting has been concluded, the setting must be changed to OFF
	AKC ON A Set state	Manual operation of relay output "AKC ON A" OFF: Forced closing of all AKV valves ON: (Activated) Normal operation
	AKC ON B Set state	Manual operation of relay output "AKC ON B" OFF: Forced closing of all AKV valves ON: (Activated) Normal operation
	DO 1 Set state	Manual operation of relay output DO 1 ON: Relay activated OFF: Relay not activated
	DO …	As above for DO 2 to DO 9
	Alarm Set state	Manual operation of alarm relay ON: Relay activated (no alarm) OFF: Relay not activated
	AO Set signal	Manual control of analog output "AO"

Alarm destinations

Measurements	AKC Error	When "ON", there is an alarm message. See page 14.
	P0A Suction temp °C	Suction pressure in °C. (Measured with the pressure transmitter on the P0A input)
	A Compressor Cap.%	Cut-in compressor capacity in % (of total capacity)
	PcA condens. temp. °C	Discharge pressure in °C. (measured with the pressure transmitter on the PcA input)
	A Condenser cap. %	Cut-in condenser capacity in %
	P0B Suction temp °C	Suction pressure in °C.(measured with the pressure transmitter on the P0B input)
	B Compressor Cap.%	Cut-in compressor capacity in % (of total capacity)
	PcB condens. temp. °C	Discharge pressure in °C. (measured with the pressure transmitter on the PcB input)
	B Condenser cap. %	Cut-in condenser capacity in %

Settings	Main control switch	Main switch: 1: Regulation 0:Controller stopped -1:Service function
	Network	ON: When alarms are registered via PC or Gateway printer OFF: When alarms are registered via AKA 21, only

Set the priority for the following alarm texts (choose between 1, 2, 3 or 0. They have the following meaning:)

1: Alarm at relay output + DANBUSS message
2: DANBUSS message only
3: Alarm at relay output + DANBUSS message, but the DO2 output on a master gateway will not be activated
0: No alarm and no DANBUSS message
The individual alarms are explained in more detail on page 14

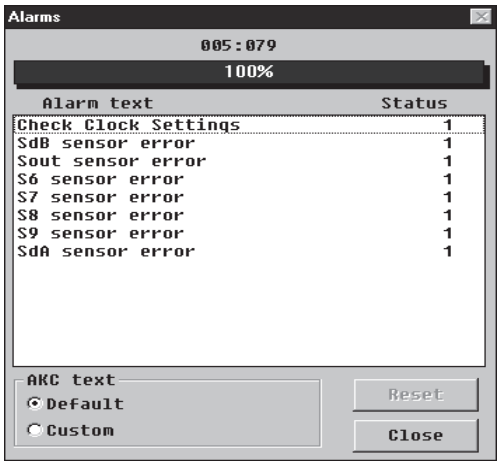
P0A Sensor fault	(Faulty P0A pressure transmitter)
PcA Sensor fault	(Faulty PcA pressure transmitter)
P0B Sensor fault	(Faulty P0B pressure transmitter)
PcB Sensor fault	(Faulty PcB pressure transmitter)
SdA Sensor fault	(Faulty SdA sensor)
SdB Sensor fault	(Faulty SdB sensor)
S6 Sensor fault	(Faulty S6 sensor)
S7 Sensor fault	(Faulty S7 sensor)
S8 Sensor fault	(Faulty S8 sensor)
S9 Sensor fault	(Faulty S9 sensor)
Sout Sensor fault	(Faulty Sout sensor)
Standby Mode	(Regulation has stopped)
Rfg.Type	(Changed refrigerant)
Check clock settings	(Power failure)
No DI input defined	(DI-input not defined)
Manual capacity ctrl.	(Peak load limitation)
P0A too low	(Min. value of suction pressure in °C)
P0B too low	(Min. value of suction pressure in °C)
PcA too high	(Max. value of discharge pressure in °C)
PcB too high	(Max. value of discharge pressure in °C)
SdA too high	(Max. value of discharge gas temperature)
SdB too high	(Max. value of discharge gas temperature)
DI1 Alarm	(Cut-out in safety circuit DI 1)
DI2 Alarm	(Cut-out in safety circuit DI 2)
DI3 Alarm	(Cut-out in safety circuit DI 3)
DI4 Alarm	(Cut-out in safety circuit DI 4)
DI5 Alarm	(Cut-out in safety circuit DI 5)
DI6 Alarm	(Cut-out in safety circuit DI 6)
DI7 Alarm	(Cut-out in safety circuit DI 7)
DI8 Alarm	(Cut-out in safety circuit DI 8)
DI9 Alarm	(Cut-out in safety circuit DI 9)

AKM menu "For DANFOSS only"

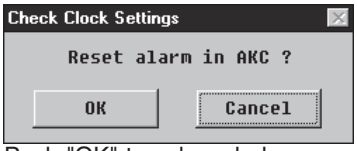
This menu contains data and setting values for special internal controller functions.
Do not chage the stated values.

Alarms

The menu display for alarms shows the active alarms. Dots will appear at the top of the menu for as long as data is being obtained.



Alarms may be acknowledged one by one by selecting one, and then pushing "OK". An Alarm message will now appear, e.g.:



Push "OK" to acknowledge.

The following alarm messages may occur:

Alarm message	Meaning	Action/cause
P0_ sensor error	Faulty P0 pressure transmitter	Check connection
Pc_ sensor error	Faulty Pc pressure transmitter	Check connection
S_ senosr error	Faulty Ss sensor	Check sensor connection / sensor resistance
Rfg.type _ has been changed	Changed refrigerant	Check the selected refrigerant. Regulation with changed refrigerant may not be done until the controller has been de-energised
Rfg.type_ is not defined	No selection of refrigerant	Select refrigerant
Rfg. types A and B differ	Warning	Different refrigerants are only permitted if the condenser circuits are separate
Discharge temp _ too high	Too high discharge gas temperature	Sd_ higher than max. Sd_ setting. Wait for temperature to drop
Condensing press. _ too high	Too high condensing temperature	Pc_ higher than max. Pc_ setting. Wait for temperature to drop
Suction pressure _ too low	Too low suction pressure temperature	P0_ lower than min. P0_ setting
No DI defined for compressor	A "DI-input" for a compressor is not defined	Define the input under "Input configuration" or set alarm destination at "0".
Compr. no _ safety cutout	Signal on terminal DI ( ) interrupted	Check compressor safety circuit
Compr. no _ oil press. cutout	Alarm from AKC 22H	Check compressor safety circuit
Compr. _ over current cutout	Alarm from AKC 22H	Check compressor safety circuit
Compr. _ dish. press cutout	Alarm from AKC 22H	Check compressor safety circuit
Compr. _ motor prot. cutout	Alarm from AKC 22H	Check compressor safety circuit

Compr. no _ not in auto	Wrong setting of switch on AKC 22H	Put switch in pos. "AUT."
Compr. _ disch temp. cutout	Alarm from AKC 22H	Check compressor safety circuit
Cond _ safety cutout	Signal on terminal DI ( ) interrupted	Check condensator safety circuit
Check Clock settings	Power failure	After power failure, timer must be set. NB! If Network = ON, resetting will take place automatically from the gateway
Standby mode	Regulation has stopped	The Main switch is either set in the position "Controller stopped" or "Service function".
Man. compr. cap. ctrl. _ set ON	Regulation is overridden	The forced control function for the compressor capacity is active.
Manual condenser ctrl _ set ON	Regulation is overridden	The forced control function for the condenser capacity is active.
General purpose alarm DI_	Signal on terminal DI ( ) interrupted	Check safety circuit

AC-RDT