

Technical Data and Wiring Diagrams
Refrigerators with Fixed Door System

Service Manual: H8-420-02-03

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Legend

Please clic on the number to open the wiring diagram

			Original compressor (poss. different values if replaced)						Thermostat		
Modell	Typ	Stromlaufplan	Anschlußplan	Sollkurve	Hersteller	Typ	Leistung l/h	Anlauf- strom A	Widerstand Ha/Hi	min °C	max °C
Erklärung zur Sollkurve				SO-50/0220 SO-50/0221							
IK178-4	KILKBJ6/01	SO-50/0001	SO-50/0002	SO-50/0271	Danfoss	TLES7K	1168	4,5	16,5/16,9		
IK188-4	KIRKBL6/01	SO-50/0001	SO-50/0002	SO-50/0347	Danfoss	TLES6K		4	19,9/15,4	+5/-12	+5/-27
IK208-4	KIFKBK1/01	SO-50/0171	SO-50/0172 SO-50/0173	SO-50/0370	Danfoss	TLES6K	1026	4	18,9/15,3	electronic	
IK248-4	KIFKBN4/01	SO-50/0171	SO-50/0172 SO-50/0173	SO-50/0375	Danfoss	TLES9K	1589	4,5	16,5/16,9	electronic	
IK258-4	KIKKBS4/01	SO-50/0001	SO-50/0002	SO-50/0270	Danfoss	TLES9K	1589	4,5	16,5/16,9	+5/-12	+5/-27
IK328-4-3Z	KICKB14/01	SO-50/0005	SO-50/0006	SO-50/0301	Danfoss	NLE15K	2637			+5/-12	+5/-27
IKE158-4	KILKBH1/01	SO-50/0001	SO-50/0002	277	Danfoss	TLES7K	1168	4,5	16,5/16,9	+5/-12	+5/-27
IKE159-4	KILKBJ7/41	SO-50/0555	SO-50/0556	SO-50/0617	Danfoss	TLY6K	1026	4,4	34,0/41,0	Ranco K59 +4/-12	+4/-32
IKE159-4	KILKBL7/43	SO-50/0708	SO-50/0709	SO-50/0710	Aspera	EMT32CLP	1073	3,5	28,4/24,7	Ranco K63 +5,2/-12	+5,2/32
IKE159-5	KILKBJ8/02	SO-50/0833	SO-50/0834	SO-50/0221, 0616		see	Küdos	CD		see	Küdos CD
IKE159-5	KILKBJ8/01	SO-50/1159	SO-50/1160	SO-50/1490, 0616		see	Küdos	CD		see	Küdos CD
IKE168-4	KIRKBJ1/01	SO-50/0001	SO-50/0002	SO-50/0364	Danfoss	TLES4K	695	6,9	29,0/19,0	+5/-12	+5/-27
IKE179-4	KIRKBL7/31	SO-50/0555	SO-50/0556	SO-50/0567	Danfoss	TLY4K	698	5,9	59,0/49,0	+5/-10	+5/-25
IKE179-5	KIRKBL8/01-V1	SO-50/0833D	SO-50/0834	SO-50/0595D							
IKE189-4	KILKBM3/31	SO-50/0555	SO-50/0556	SO-50/0613	Danfoss	TLY7K	1168	5,7	27,1/27,2	+5,2/-15	+5,2/-32
IKE189-5	KIKLKBM4/02	SO-50/1159	SO-50/1160	SO-50/1491		see	Küdos	CD		see	Küdos CD
IKE189-5	KILKBM4/01	SO-50/0833	SO-50/0834	SO-50/0613		see	Küdos	CD		see	Küdos CD
IKE198-4	KILKBM2/01	SO-50/0001	SO-50/0002	SO-50/0366	Danfoss	TLES7K	1168	4,5	16,5/16,9	+5/-12	+5/-27
IKE208-4	KIRKBM1/01	SO-50/0001	SO-50/0002	SO-50/0363	Danfoss	TLES4K	695	6,9	29,0/19,0	+5/-12	+5/-27
IKE209-4	KIRKBN4/31	SO-50/0555	SO-50/0556	SO-50/0703	Danfoss	TLY4K	698	5,9	59,0/49,0	+5/-10	+5/-25
IKE209-5	KIRKBN5/01	SO-50/0833D	SO-50/0834D	SO-50/0703D							
IKE229-4	KILKBL1/33	SO-50/0555	SO-50/0556	SO-50/0735	Danfoss	TLY8K	1404	6,4	21,6/26,0	+5,2/-15	+5,2/-32

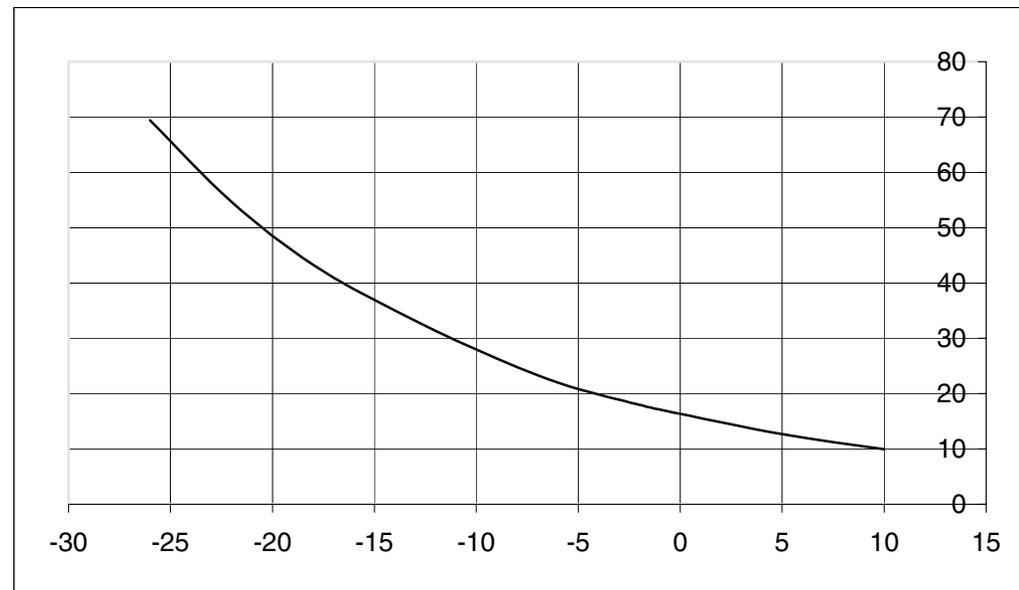
Legend

Refrigerator data
Fixed furniture door system

IKE229-4	KILKBL1/34	SO-50/0555	SO-50/0556	SO-50/0735	Aspera	EMT32CLP	1073	3,5	28,4/24,7	+5,2/-15	+5,2/-32
IKE229-4	KILKBL1/31	SO-50/0565	SO-50/0566	SO-50/0564	Danfoss	TLY7K	1168	5,7	27,1/27,2	+5,2/-15	+5,2/-32
IKE229-5	KILKBL2/01	SO-50/1159	SO-50/50/1160	SO-50/1492		see	Küdos	CD		siehe	Küdos CD
IKE229-5	KILKBL2/02	SO-50/0833D	SO-50/0834D	SO-50/0735D		see	Küdos	CD		siehe	Küdos CD
IKE249-4	KIRKBM2/31	SO-50/0555	SO-50/0556	SO-50/0594	Danfoss	TLY4K	698	5,9	59,0/49,0	+5/-10	+5/-25
IKE249-5	KIR2674/40	SO-50/0555	SO-50/0556	SO-50/0594		see	Küdos	CD		see	Küdos CD
IKE269-5-2T	KIEKBT1/01	SO-50/0824	SO-50/0825-0826D	SO-50/0877D		see	Küdos	CD		see	Küdos CD
IKE288-4	KIMKBW01/01	SO-50/0001	SO-50/0002	304	Danfoss	TLES9K	1589	4,5	16,5/16,9	+5/-20	+5/-31
IKE308-4T2	KIEKBY1/31		SO-50/0824-0826	SO-50/0878	Matsushita	DC110E					electronic
IKE308-5T2	KIEKBY2/01	SO-50/0824-0826	SO-50/0825-0826	SO-50/0878		see	Küdos	CD			electronic
IKE329-Z3	KICKB15/31	SO-50/0555	SO-50/0556	SO-50/0744	Danfoss	NLE13K	2394	10,9	10,7/13,0	+5,2/-15	+5,2/-32
IKE329-5Z3	KICKB16/01-V01	SO-50/1288	SO-50/1289-90	SO-50/0221-1253		see	Küdos	CD		see	Küdos CD
IKE329-6Z3	KICKB17/01-V1	SO-50/1288	SO-50/1289-90	SO-50/0221-1253						electronic	
IKF209-4	KIFKBK4/31	SO-50/0731	SO-50/0732	SO-50/0675	Danfoss	TLY6K	1026	4,4	34,0/41,0		electronic
IKF229-4	KIFKBM1/01-V01					see	Küdos	CD		see	Küdos CD
IKF229-5	KIFKBM2/01-V1	SO-50/0731	SO-50/0732	SO-50/0831		see	Küdos	CD			electronic
IKF249-4	KIFKBN6/32	SO-50/0731	SO-50/0732	SO-50/0647	Danfoss	TLY8K	1404	6,4	21,6/26,0		electronic
IKF249-5	KIFKBN7/01	SO-50/0731	SO-50/0732	SO-50/0647		see	Küdos	CD			electronic
IT116-4	GILKBC4/02	SO-50/0193	SO-50/0194	SO-50/0371	Danfoss	TLES9K	1589	4,5	16,5/16,9	-17/-23 Alarm -13	-25/-33 Alarm -19,5
IT136-4	GILKBF5/02	SO-50/0193	SO-50/0194	SO-50/0330	Danfoss	TLES7K	1168	4,5	16,5/16,9	-17/-23 Alarm -13	-25/-33 Alarm -19,5
ITE109-4	GILKBJ7/43	SO-50/0601	SO-50/0602	SO-50/0715							
ITE109-5	GILKBC6/02	SO-50/0848D	SO-50/0849D	SO-50/1560D		see	Küdos	CD		see	Küdos CD
ITE129-4	GILKBF6/41	SO-50/0601	SO-50/0602	SO-50/0600	Danfoss	TLY8K	1404	6,4	21,6/26,0	-15/-21	-23/-31
ITE129-4	GILKBF6/41	SO-50/0601	SO-50/0602	SO-50/0600	Aspera	EMT40CLP	1384	4,4	23,0/23,0	-15/-21	-23/-31
KE315-5-2T	KGEKB21/05	SO-50/1122	SO-50/1123-24	SO-50/0221, 0995		see	Küdos	CD		electronic	
KE320-4	KKEKB21/55		SO-50/0518 (p.9) - 0522	SO-50/0297	Matsushita	DA110E	1980	8,7	12,0/28,7		electronic

NTC-Kennlinie

10	5	0	-2	-6	-10	-14	-18	-22	-26
9,95	12,7	16,33	18	22	28	35	43,31	54,66	69,42
			int	int	int	int			



1. Appliance inspection with the setpoint curve sheet

1.1 General

Fridges and freezers are always subject to the interaction between the effect of heat, limited cooling capacity and system inertia. The fridge and freezer compartment temperatures therefore depend on

- ◆ the appliance
- ◆ the control knob position
- ◆ the installation conditions.

Those electronically controlled appliances which record the appliance inside temperature as a reference variable are one exception, assuming operation within the application limits and in the steady-state condition.

Different temperatures are also produced at different geometrical locations in the appliance interior. In order to obtain any comparable values at all, the mean fridge and/or freezer compartment temperature must always be measured in the geometrical centre.

1.2 Setpoint curve sheets

The appliance-specific setpoint curve sheets prepared in the laboratory provide information on the performance and temperature behaviour of the fridges and freezers, assuming the following general conditions:

- ◆ The appliance is in the steady-state condition. (The refrigerating unit works solely to compensate for the effect of heat through insulation, door seal and heat bridges)
- ◆ The appliance is empty
- ◆ The door remains closed during the measurement
- ◆ The ambient temperature (TR) is constant .

depend on

- ◆ the control knob position
- ◆ the ambient temperature TR (°C)

and the

- ◆ mean fridge compartment temperature TM (°C)
- plotted on the horizontal axis.

The following test values shown graphically on the vertical axis

- ◆ EAN (KWh/d): standardised mean energy consumption per day
- ◆ RED (%): relative compressor activation
- ◆ TV (°C): mean temperature in the freezer compartment
- ◆ TFKF (°C): mean temp. in the near-0° compartment
- ◆ TKEF (°C): mean temp. in the cellar compartment

As appliance tolerances have a direct effect on the setpoint curves, the test values illustrated do not produce straight lines but tolerance bands. To prevent them from running into each other, max. 3 tolerance bands are shown per test value for the ambient temperatures 16°C, 25°C and 32.5°C.

The tolerance bands stand for all control knob positions from 1 to 5. The tolerance bands break down into overlapping subsections in line with the control knob position and the control tolerance.

However, in order to ensure legibility, only the control knob positions 1 to 5 are illustrated. Each tolerance band therefore consists of the following 3 segments:

- ◆ right-hand segment: control knob position 1
- ◆ central segment: core range 2 - 4
- ◆ left-hand segment: control knob position 5



Caution!

All tolerance bands end at the latest at 100% RED; continuous running.

If fridges and freezers are opened, food removed or inserted, RED and EAN rise by about 20% given normal insulation and frequency of use. Only when the steady-state condition is reached (the refrigerating unit operates solely to offset the effect of heat through insulation, door seal and heat bridges) are the values in the setpoint curve sheet produced.

1.3 Setpoint curve sheet as a diagnosis aid

The comparative values shown in the setpoint curve sheets permit a functional test of the fridges and/or freezers which, without any apparent reason (e.g. control knob defective):

- ◆ are apparently too warm or too cold in the fridge and/or freezer compartment,
- ◆ ice up,
- ◆ consume too much energy,
- ◆ apparently indicate a different fridge and/or freezer compartment temperature.

1.4 Appliance inspection

Measuring the appliance data

Given otherwise equal conditions, the fridge and/or freezer compartment temperature depends heavily on the amount of heat introduced into the appliance. To permit the mean fridge or freezer compartment temperature to be determined, the temperature in the geometrical centre of the fridge or freezer compartment should therefore be measured over at least 24 hours. The customer should be informed beforehand that the appliance should be opened as little as possible during the measurement and as little fresh food as possible should be put into the appliance for only then can the steady-state condition be produced.

1. Values to be determined
 - TM/°C =
 - TR/°C =
 - Control knob position =
2. Compare measurements with control knob diagram.

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2. Customer service programme for appliances with electronic control section

KE320- 4-2T

2.1 Activation of the customer service test programme

1. Turn the appliance off with the main switch.
2. Press the button "SUPER" and kept it pressed and
3. switch the appliance on.

The "**Super button**" must remain pressed until the yellow Super LED goes off again after having come on (more than 5 sec.). "**PO**" appears on the FC display. Release the "**SUPER button**" again. The specific test programme can be set using the "**FC setpoint temperature button**". In this case the counter is always set one higher. When the "**FC On/Off**" or the "**Alarm Off**" button is pressed, the direction of counting is reversed.

If the "**SUPER button**" is now pressed again, the function is executed until the "**SUPER button**" is released again. If a setting is not changed for 10 minutes, the appliance reverts to the controlled mode.

The test programme is ended when the power supply is switched off (switching off the appliance, power failure).

Display	Function
PO	Initiation of an FC and FZC defrosting phase
P1	Valve is triggered (bistable: constant half-waves)
P2	FC fan is triggered
P3	FZC fan is triggered (if available)
P4	Condensation heating is triggered (if available)
P5	Defrosting heater is triggered (if available)
P6	Buzzer is triggered
P7	Halogen transformer is triggered
P8	Compressor is triggered
P9	FCS and FZCS temperatures are displayed, not corrected value (continuous display of the measured value in °C). The FC display uses the alarm LED as a negative sign to display the FCS temperature.
PA	FZCES temperature is displayed (continuous display of the measured value in °C, if available, in the FZC display)
PB	Allowance (see "A") and status display of the FCDS on FC display (continuous display)
PC	Transfer to controlled mode

A: With this setting the FZC door status is displayed direct. In addition, the Super button can be used to select whether the FZC door is to be allowed for by the software or not (if available).

Display: FZC display:

- CI = FZC door closed, FZC door is allowed for by the software.
- OI = FZC door open, FZC door is allowed for by the software.
- CF = FZC door closed, FZC door is not allowed for by the software.
- OF = FZC door open, FZC door is not allowed for by the software.

FC- display:

- C = FC door closed.
- O = FC door open.

Sensor breakage / short-circuit

The following functions are initiated in the event of a sensor breakage or short-circuit. The functions of the other sensors are retained.

Sensor	Temperature	Appliance reaction
FCS	45 °C, -7 °C	FC display flashes "E1" FC control: 10 min. - On, 10 min. - Off
FZCS	45 °C, -44 °C	FZC display flashes "E2" Compressor runs continuously Defrosting without influence Fan runs synchronously with the compressor after the defrosting phase
FZCES	45 °C, -44 °C	Defrosting time: 18 min. every 24 hours.

Abbreviations:

- FC = Fridge compartment
- FZC = Freezer compartment
- FCS = Fridge compartment sensor
- FZCS = Freezer compartment sensor
- FZCDS = Freezer compartment door switch
- FCDS = Fridge compartment door switch
- FZCES = Freezer compartment evaporator sensor

3. Legend

EAN	=	Mean energy consumption per day
RED	=	Relative compressor duty cycle
TM	=	Mean fridge compartment temperature
TV	=	Mean freezer compartment temperature
TFKF	=	Mean temperature in the 0° compartment
TKEF	=	Mean temperature in the cellar compartment
TR	=	Ambient temperature

a 1	=	Main switch
d 1	=	PTC element
e 1	=	Protective switch
e 2	=	Switch "Light"
e 2	=	Switch "Super"
e 2	=	Switch "Halogen light"
e 2	=	Changeover switch "Light"
e 3	=	Switch "Alarm"
e 3	=	Switch "Winter switch"
e 4	=	Control panel
f 1	=	Temperature controller
f 1	=	Control electronics
f 1	=	Potentiometer with switch
f 1	=	Control electronics
f 2	=	Electronics
f 2	=	Power supply unit
h 1	=	Light
h 1	=	Pilot light "Mains display" (green)
h 1	=	Halogen light
h 2	=	Pilot light "Alarm" (red)
h 3	=	Pilot light "Super" (yellow)
h 4	=	Buzzer
k 1	=	Operating capacitor
k 2	=	Capacitor winter switch
l 1	=	Connection element
l 2	=	Support rail
l 2	=	Housing
l 3	=	Jack
l 3	=	Jack (RLK 5)
l 3	=	Connector housing (6-pin)
l 3	=	Junction box
l 3	=	Bushing housing
l 3	=	Flat junction box
l 4	=	Bushing housing (2-pin)
l 4	=	Jack (heating)
l 4	=	Timer housing
l 4	=	Bushing housing
l 5	=	Edge connector housing (7-pin)
l 5	=	Bushing housing
l 6	=	Bushing housing
l 7	=	Bushing housing
l 7	=	Jack
l 8	=	Junction box (5-pin)
l 8	=	Bushing housing
l 8	=	Flat junction box

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l 9	=	Connector housing (5-pin)
l 9	=	Bushing housing
l 9	=	Timer housing
l 10	=	Junction box (5-pin)
l 10	=	Pin housing
l 11	=	Junction box (5-pin)
l 11	=	Bushing housing
l 12	=	Pin housing
l 13	=	Bushing housing
l 19	=	Bushing housing
l 20	=	Pin housing
m 1	=	Compressor motor
m 1	=	Compressor
m 2	=	Fan motor
m 2	=	Fan motor machine comp.
m 2	=	Fan FFC
m 3	=	Circulating air fan
m 5	=	Transformer
r 1	=	Heating
r 1	=	Frame heating
r 1	=	Temperature sensor 10°C
r 1	=	Air temperature sensor fridge comp.
r 2	=	Temperature sensor 0°C
r 2	=	Air temperature sensor freezer comp.
r 2	=	Air temperature sensor fresh food comp.
r 3	=	Air temperature sensor fridge comp.
s 1	=	3-way valve

Control knob position 1

Core range of the control knob position 2-4

Control knob position 5