



# Electronic controller
## EKC 101

REFRIGERATION AND
AIR CONDITIONING

Technical Brochure

## Introduction

EKC 101 for panel mounting has been specially developed for control duties in refrigeration plant and heat plant so that operation, setting and programming are optimised and simplified as much as possible.

The controller is designed for defrost and room temperature control via pump down or compressor start/stop in refrigeration plant.

EKC 101 is used for

- *temperature control for heating or cooling mode*
- *control of natural defrost in refrigeration plant*

With only two keys, all functions can be set and programmed.

- The controller can be programmed very quickly using serial interface equipment (OEM programming).

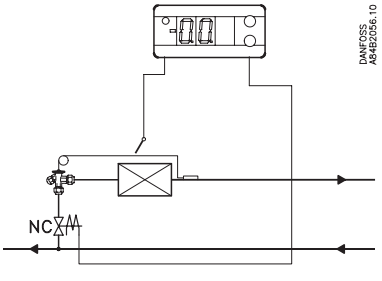
The display shows the actual room temperature.

- The controller, with 2 digits in the display, will show the temperature in degrees °C.
- The controller, with 3 digits in the display, will show the temperature with one decimal

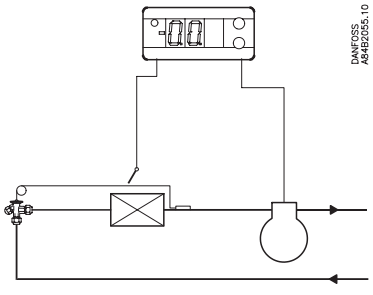
## Features

- One electronic controller is able to replace one traditional thermostat and defrost clock.
- Can control heat plant as well as refrigeration plant
- Temperatures, times, parameter codes and alarm and fault codes can be read from the display.
- An LED indicate whether the plant is operating
- Easy to re-establish factory setting.
- When there is fault, "Er" appears on the display

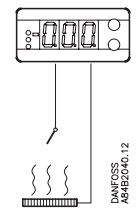
*Application example*




Room temperature control by pump down.
Natural defrost on pump down.




Room temperature control by compressor start/stop.
Natural defrost on compressor stop.



## Technical data

*Supply voltage*
230 V a.c. +10/−15 %
50/60 Hz

*Power consumption*
2.5 VA

*Sensor*
Type: EKS 111
PTC ($R_{25}$ = 1000 ohm)
Cable length: max. 10 m

*Controller-sensor system*
Measuring range: −60 → +50°C
0 → +99°C
Accuracy: ±1°C
for sensor temperature
0 → +10°C;
±2°C
for sensor temperature
−60 → 0°C and
+10 → +50°C

*Display*
- LED-two digits (no decimal): 1°C read-off accuracy in measuring range
- LED-three digits (with decimal): 0.1°C read-off accuracy in measuring range

*Electrical connection cable*
max.1.5 mm² multi-core cable

*Relays*
Controller relay, SPDT, 250 V a.c., 16 A
$I_{max.}$ = 10 A ohmic/6 A AC-8 inductive

*Ambient temperature*
Operation: −0 → +55°C
Transport: −40 → +70°C

20-80% Rh, not condensed
No shock influence / vibrations

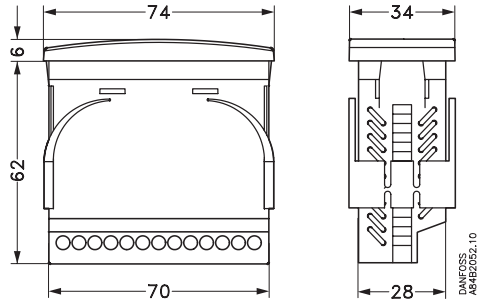
*Enclosure*
IP 54

*Approvals*
EU low-voltage directive and EMC stipulations on CE marking are complied with.
LVD-tested to EN 60730-1 and EN 60730-2-9
EMC-tested to EN 50081-1 and EN 50082-1 and EN 60730-2-9, A1, A2

## Ordering

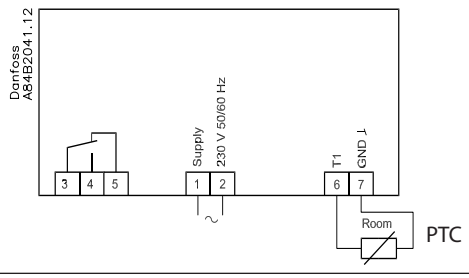
| Type | Number of digits | Application | Enclosed | Code no. |
|---|---|---|---|---|
| EKC 101 | 2 | Refrigeration / heat | PTC sensor type EKS 111 with 1.5 m cable | **084B7620** |
| | 3 | | | **084B7621** |

## Dimensions and weight




*EKC 101 for panel mounting* *Weight: 150 g*

## Electrical connection



## Controller, setting parameters

Code No. : 084B7020, SW = 3.0x., 084B7021, SW = 3.0x

| Setting and read-off parameters | | Parameter codes | Min. value | Max. value | Factory setting | Actual setting |
|---|---|---|---|---|---|---|
| **Temperatur controller, temperature** | | | -60(0)°C | 50(99)°C | 0°C | |
| **Thermostat** | | | | | | |
| Differential [1] | | r1 | 1 K | 20 K | 2 K | |
| Max. limitation of set temperature | | r2 | -59(1)°C | 50(99)°C | 50°C | |
| Min. limitation of set temperature | | r3 | -60(0)°C | 49(99)°C | -60°C | |
| Adjustment of temperature indication | | r4 | -20 K | 20 K | 0.0 K | |
| Temperature unit (°C/°F). 084B7021 only | | r5 | - | - | °C | |
| **Compressor** | | | | | | |
| Min. ON-time | | c1 | 0 min | 15 min | 0 min | |
| Min. OFF-time | | c2 | 0 min | 15 min | 0 min | |
| Cut-in frequency on sensor fault [2] | | c3 | 0 % | 99 % | 0 % | |
| **Defrost** | | | | | | |
| Defrost stop temperature | | d2 | 0°C | 25°C/OFF | OFF | |
| Interval between defrost starts | | d3 | OFF | 48 hour | 8 hour | |
| Max. defrost duration | | d4 | 0 min | 99 min | 45 min | |
| Delay of display view after defrost stop | | d5 | 0 min | 15 min | 0 min | |
| Defrost after strart-up | 084B7020 | d6 | ON | 99 min | OFF | |
| | 084B7021 | | ON | 240 min | OFF | |
| **Miscellaneous** | | | | | | |
| Delay of outputsignal after start-up | | o1 | 0 min | 15 min | 0 min | |
| Access code | | o5 | OFF | 99 | OFF | |
| Used sensor type Pt/Ptc. 084B7021 only | | o6 | - | - | Ptc | |
| Refrigeration or heat (rE=refrigeration, HE = heat) | | o7 | rE | HE | rE | |

| **Fault code display** | |
|---|---|
| Fault in controller | Er |
| Disconnected room sensor | Er |
| Short-circuited room sensor | Er |

( ) Values stated in parenthesis, are only possible if the setting o7 = HE.

[1] Refrigeration (o7 = rE):
The relay closes when the room temperature exceeds the setting value and differential.
Heat (o7 = HE):
The relay closes when the room temperature drops to the setting value less the differential

[2] After start-up and throughout three days and nights this value is used by the controller. Afterwards the controller is capable by itself to calculate the average value of previous cut-in times.