EN-Instruction sheet
ERC 101 kit

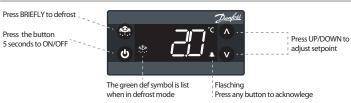## Technical highlights

- Pre-programmed - ready to use
- Compressor protection against instable voltage
- High condensing temperature protection
- Compact design - total depth is only 46 mm
- Real 16A power relay - up to 2.5 HP compressors
- Automatically controlled brightness of large-size LED display
- Fully compatible with flammable refrigerants (R290)
- Moisture protection (housing & coating)
- Advanced defrost algorithms

Technical specifications

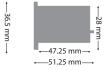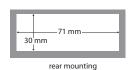| FEATURES	DESCRIPTION
Power supply	100 VAC - 240 VAC 50-60 Hertz, automatic switch mode power supply
Rated power	Less than 0.5 W
2 analogue inputs	Danfoss NTC Air temperature probes Danfoss NTC Condenser temperature probes (optional)
Output compressor relay	16 (16A) EN60730; 16 (16A) CQC; 16A (16A FLA/72A LRA) UL60730
Display	LED display, 3 digits, decimal point and multi functionality icons, ℃ scale
Operating conditions	0 ℃ to 55 ℃, 93% rH
Storage conditions	-40 ℃ to 85 ℃, 93% rH
Measurement range	-40 ℃ to 85 ℃
Protection	Front: IP65/Rear: water and dust protection corresponds to IP31, accessibility of connectors limit rear part rating to IP00
Environmental	Pollution degree III (can be mounted inside a refrigerated cabinet), non-condensing
Resistance to heat & fire	Category D (UL94-V0)
EMC category	Category I
Operating cycles	Compressor relay: more than 175,000 at full load ((16A) 16A)
Approvals	R290/R600a: EN/IEC 60079-15:2005, Glow wire according to EN/IEC 60335-1, IEC/EN 60730, UL60730, NSF, CQC, GOST R 60730 Note: These approvals are only valid when using the accessories listed in this document

Installation

- Insert the ERC 101 in to the cabinet
- Attach the clips to each side of the ERC 101

Input/output

DO	❄	∼	
1(o1)	√		DO1:
2		L	UL: 16FLA 72LRA,
3		N	IEC: 16(16)A

Input/ Sensors	Cabinet Sensors	Evapor. Sensors	Conden. Sensors
S1	√		
S2			√

ERC 101 controller

100-240VAc +/-10% 50/60Hz

OT 55

1 2 3	DO & Input/Sensors	S1	S2

Dimensions mm

36.5 mm
78.25 mm
47.25 mm
51.25 mm
28 mm
71 mm
30 mm
rear mounting

Display/operation

Press BRIEFLY to defrost

Press the button 5 seconds to ON/OFF

Press UP/DOWN to adjust setpoint

The green def symbol is list when in defrost mode

Flasching Press any button to acknowlege

Press: variable direct function defrost Sub function: BACK

Press: tempearture setpoint sub function: UP

Press: upper left button BACK to return to parameter group

Press and hold for 5 seconds to enter the menu

To select: press the lower left button (OK)

Press: UP/DOWN to scroll through the menu

Press: variable direct functionON/OFF Sub function: OK

Press: tempearture setpoint sub function: DOWN

Operation menu

Press 5 sec both right buttons to access the menu

1) Parameter groups

tHE
ALA
CoP
dEF
Con
d.IS
AS.i
SEr

Scroll through the menu group

Higher left button to exit

Lower left button to confirm

2) Parameter name

HAt
LAt

Scroll through the parameters group

Higher left button to exit

Lower left button to confirm

3) Parameter value

150
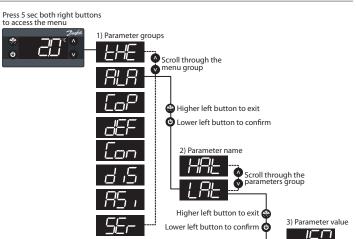
⚠ IMPORTANT NOTE
The inputs are not galvanic separated and are connected directly to the mains supply! For that reason, door-switches, sensors as well as the cables must fulfil the reinforced insulation requirements.

Safety info

Risk of electrocution!
For mounting: do not connect mains power until the controller is correctly mounted.
For unmounting: disconnect the power supply before unmounting

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Parameters

Menu	Parameters	Cod	Description	Min	Max	Unit	Default
	Setpoint	Stp	Setpoint	-50	80	C	2
Thermostat		tHE	Thermostat settings				
	Setpoint adjustment ratio	SPr	Current setpoint adjustment value diF * SPr	0.0	1.0	-	0.0
	Differential	diF	Thermostat differential	0.0	20.0	K	2.0
	Air temperature adjust	tAD	Air Temp Adjust	0.0	20.0	K	0
Alarm		ALA	Alarm setting				
	High temperature alarm	HAt	Alarm is activated above this temperature (Celsius)	-50.0	80.0	C	15.0
	Low temperature alarm	LAt	Alarm is activated below this temperature (Celsius)	-50.0	80.0	C	-50.0
Compressor		CoP	Compressor Setting				
	Min run time	Crt	Minimum time compressor must run 0-30 minutes	0	30	min	0
	Min Stop time	CSt	Minimum time compressor must idle 0-30 minutes	0	30	min	0
	Max OFF time	Cot	Maximum time compressor must idle 0-480 minutes	0	480	min	0
	Error run time	Ert	Compressor run time if temperature sensor is not working (0-60 minutes)	0	60	min	0
	Error stop time	ESt	Compressor stop time if temperature sensor is not working (0-60 minutes)	0	60	min	0
	Minimum cut-in voltage	uLi	When compressor is OFF: lowest compressor start voltage (0-270 V)	0	270	Vac	0
	Minimum cut-out voltage	uLo	When compressor is ON: lowest operation voltage (0-270 V)	0	270	Vac	0
	Maximum voltage	uHi	When compressor is ON: highest operation voltage (0-270 V)	0	270	Vac	270
	Power ON delay	Pod	Delay in seconds between power ON & compressor being activated	0	300	Sec	180
Defrost		dEF	Defrost Setting				
	Defrost type	dFt	No: defrost function is disabled, nat: OFF-cycle defrost (natural defrost)	no	nat	-	nat
	Terminating temp	dtt	Temp at which defrost stop (evap temperature or cabinet temperature)	0	25	C	7
	Def Min Interval	dii	The minimum time in hours between the start of each defrost cycle	0	96	hours	6
	Def Max Interval	dAi	The maximum time in hours between the start of each defrost cycle	0	96	hours	7
	Def Min time	dit	The minimum duration of a defrost cycle in minutes	0	240	min	10
	Def Max time	dAt	The maximum duration of a defrost cycle in minutes	0	480	min	30
Condenser Protection		Con	Condenser protection settings				
	Condenser Alarm Limit	CAL	If condenser sensor exceeds this temperature, alarm is activated	0	85	C	75
	Condens er Block Lim it	CbL	If this temperature is exceeded, compressor will be stopped	0	85	C	85
	Condenser OK limit	CoL	Temperature at which compressor may start after a stop due to exceeding CbL	0	85	C	60
	Condenser Low Temp	CLL	Temperature below which the compressor is not allowed to start	-50	20	C	-5
Display		diS	Display setting				
	Lock-time After defrost	dLt	Display lock time after defrost [0-60 min]	0	60	min	5

Assignments			Assignments of inputs and outputs				
	S2 Application	S2A	Application to be controlled with Sensor C. (nC=Not Connected, Sco= Temp control, EuA= Evap temp, Con=Cond temp (condenser cleaning))	nC	Con	-	nc
	DO1 configuration	o1C	Relay output 1. compressor (CoP) 2. Heater HeT	CoP	HeT	-	CoP
	Password level1	PS1	Shop owner Most common parameters	0	999	-	0
	Password level2	PS2	Service technician all parameters with read permission and possibility to change a number of parameters	0	999	-	0
Service			Service				
	Voltage value	uAC	Current main power supply voltage	0	270	Vac	-
	Relay 1 counter	rL1	Thousands of cycles of compressor relay since manufacture	0	999	1000	-
	Interval counter	int	Compressor run time since last defrost	0	999	min	-
	Defrost time counter	dnt	Duration of last defrost cycle [min]	0	999	min	-
	Firmware version	Fir	Danfoss software version number	-	-	-	-
	Hardware version	HAr	Danfoss hardware version number	-	-	-	-

Problem solving

Problem	Probable cause	Remedy
Compressor does not start	Waiting for compressor delay timer	Check CoP->CSt
	Line voltage to compressor too low or too high	Check CoP->uLi, uLo, uHi
E01 or E02 is shown on display	E01: Sensor "S1" defective	Replace sensor
	E02: Sensor "S2" defective	
Display alternates between "Con" and temperature	Condenser temperature exceeds the temperature set in condenser settings menu	Clean condenser, Check Con->CAL, CbL
Display alternates between "Hi" and temperature	Temperature too high	Check ALA->HAt
Display alternates between "Lo" and temperature	Temperature too low	Check ALA-> LAt