



EN-Instruction sheet

ERC 102 kit



Installation

- Insert the ERC 102 in to the cabinet
- Attach the clips to each side of the ERC 102



Changing the desired temperature setpoint

① The display shows the current temperature

② Press: UP/DOWN to adjust setpoint. After 30 seconds, the display automatically reverts to showing the current temperature

temperature setpoint

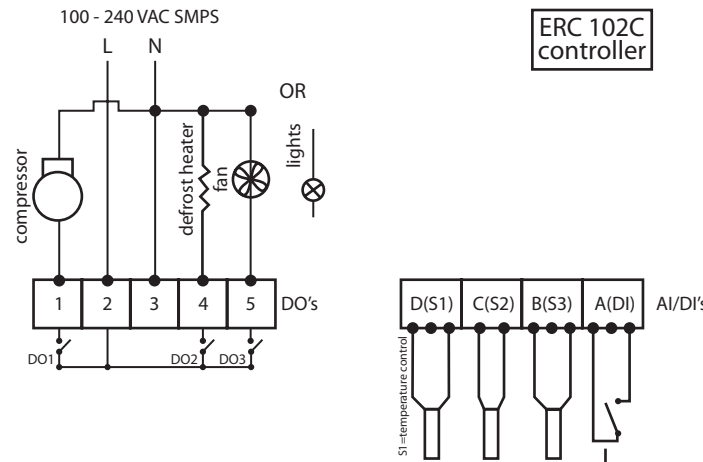
Technical highlights

- Save up to 52 % energy
- Sleep/night mode detection
- Smart fan control
- Reliable & Advance defrost algorithm
- Compressor protection against instable voltage
- High condensing temperature protection
- Real 16 A power relay - up to 2.5 HP compressors
- Fully compatible with flammable refrigerants (R290)
- Moisture protection (housing & coating)
- Pre-programmed - ready to use

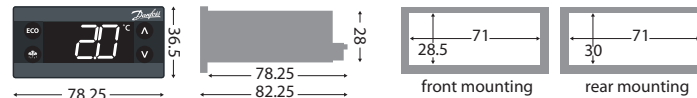
Technical specifications

FEATURES	DESCRIPTION
Power supply	100 VAC - 240 VAC 50-60 Hertz, automatic switch mode power supply
Rated power	Less than 0.7 W
Inputs	4 inputs: 3 analogue and 1 digital: - Air/evaporator/condenser - Door sensor: all types, user specific
Output compressor relay	1xCompressor relay: 16 (16A) EN60730; 16 (16A) CQC; 16A (16A FLA/72A LRA) UL60730 2xAux relay: total load: max 10 A Individual load: U60730: 8FLA/12LRA/TV1" EN60730: 8A resistive/2(2)A
Display	LED display, 3 digits, decimal point and multi functionality icons; °C scale
Operating conditions	0 °C to 55 °C, 93% rH
Storage conditions	-40 °C to 85 °C, 93% rH
Measurement range	-40 °C to 85 °C
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

Input/output



Dimensions mm



Display/operation

Press variable direct function, e.g. ECO/night mode. Sub function: BACK

Press temperature setpoint Sub function: UP

Press variable direct function, e.g. defrost mode. Sub function: OK

Press temperature setpoint Sub function: DOWN

Turning ON/OFF the light

Press and hold for 5 sec LIGHT button To turn OFF the Light press and hold the LIGHT button again

Turning ON/OFF the ECO and DEFROST function

Press briefly to entering in ECO mode

The green ECO symbol appears in ECO mode

Press briefly to entering in DEFROST mode

The DEFROST symbol appears in DEFROST mode

Operation menu

Press 5 sec both right buttons to access the menu

1) Parameter groups

Scroll through the menu group

Higher left button to exit

Lower left button to confirm

2) Parameter name

Scroll through the parameters group

Higher left button to exit

Lower left button to confirm

3) Parameter value

Password protection

Press 5 sec both right buttons to access the menu

Password protection on two levels:
level 1: shop (daily use by shop persone)
level 2: ser (service technician)

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



EN-Instruction sheet

ERC 102 kit

Parameters

Menu	Parameters	Cod	Description	Min	Max	Unit	Def
	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 Temperature Adjust	0.0	20.0	K	0.0
Alarm		ALA	Alarm setting				
	High alarm delay	Htd	Alarm delay on high temperature	0	240	min	30
	Low alarm delay	Ltd	Alarm delay on low temperature	0	240	min	0
	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
	Door open delay	dod	Alarm delay for door open (0-60 minutes)	0	60	min	2
Compressor		CoP	Compressor Setting				
	Min run time	Crt	Minimum time compressor must run 0-30 minutes	0	30	min	0
	Min Stop time	CSt	Min time compressor must idle 0-30 minutes	0	30	min	0
	Max OFF time	Cot	Max 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	-	EL
	Terminating temp	dtT	Temp at which defrost stop (evap temp or cabinet temp)	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	5
	Def Max time	dAt	The maximum duration of a defrost cycle in minutes	0	480	min	30
	Drip OFF time	dot	The duration in minutes of the drip-OFF time at the end of a defrost cycle	0	60	min	0
	Fan delay after defrost	Fdd	The duration in minutes before the fan starts after a defrost cycle	0	240	sec	0
	Defrost fan ON	dFA	Whether the fan will run during a defrost cycle	no	yes	-	no
	Initial defrost interval	idi	The number of hours after power-up before the first defrost cycle starts	0	96	hours	3
	Initial defrost duration	idd	Defrost is deactivated	0	999	cycles	100
Fan		FAn					
	Fan always ON	FAo	No: fan parameters below active. Yes: fan is always ON	no	yes	-	yes
	Fans stop time on door open	Fdt	The maximum time the fan will be stopped after the door has been opened	0	999	sec	0
	Fan on cycle	FoC	The number of seconds the fan runs when the compressor is OFF	0	960	sec	0
	Fan stop cycle	FSC	The number of seconds the fan does not run when the compressor is OFF	0	960	sec	0

Problem solving

Problem	Probable cause	Remedy
Compressors does not start	Waiting for compressor delay timer	Check CoP -> CSt
	Defrost in progress	Check DEF -> dit, dot
	Line voltage to compressor too low or too high	Check CoP -> uLi, uLo, uHi
Fan does not start	Door is open or door contact is defective	Fan stops when door is opened Check that door contact is OK
	E01: sensor "S1" defective E02: sensor "S2" defective E03: sensor "S3" defective	Replace sensor
Display alternates between "Con" & temp.	Condenser temperature exceed the temperature set in condenser settings menu	Clean condenser, check Con -> CAL, Cbl
Display alternates between "Hi" & temp.	Temperature too high	Check ALA -> HAT
Display alternates between "Lo" & temp.	Temperature too low	Check ALA -> LAT
Display show "dEF"	Defrost in progress	Check dis -> sdf
Display show "ECO"	Economy mode	Check dis -> SEC

Energy managment		Eng					
	ECO activity delay	EAd	Minutes delay after last door opening until ECO mode is enabled; 0:disable	0	360	min	0
	ECO temperature offset	Eto	Tempearture increase for ECO mode relative to normal mode	0	10	K	2
Condenser Protection		Con	Condenser protection setting				
	Condenser Alarm Limit	CAL	If condenser sensor exceeds this temperature, alarm is activated	0	85	C	75
	Condenser Block Limit	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
	Show economy state	SEC	Yes: display will show "eco" when in ECO mode; No: temperature will be shown	no	yes	-	yes
	Show defrost	Sdf	Yes: display will show "deF" during defrost; No: display will show temp	no	yes	-	yes
Assignments			Assignment 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	-	EuA
	S3 Application	S3A	Application to be controlled with Sensor C (nC=Not Connected, Sco=Temp control, EuA= Evap temp, Con=Cond temp (condenser cleaning))	nC	Con	-	nC
	DI configuration	diC	doC: Door contact, contact closed when door closed, doo: door contact, Contact open when door closed, buS:communication	doC	doo	-	buS
	DO1 configuration	o1C	Relay output 1. compressor (CoP) 2. Heater HeT	CoP	HeT	-	CoP
	DO2 configuration	O2C	Relay output 2. No: not used; dEF:elec defr heater/hot gas valve; ALA:alarm output; FAN: fan control; Lig:light control	no	Lig	-	dEF
	DO3 configuration	O3C	Relay output 3. No: not used; dEF:elec defr heater/hot gas valve; ALA:alarm output; FAN: fan control; Lig:light control	Cop	Het	-	FAn
	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
	Cabinet light control source	CLC	"LEC": economy (and button if defined) only	Lig	LEC	-	Lig
	Light OFF delay	Lod	Light OFF delay [sec] after door has been closed	0	300	sec	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	-
	Relay 2 counter	rL2	Thousands of cycles of compressor relay since manufacture	0	999	1000	-
	Relay 3 counter	rL3	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	-
	Door open counter	ont	ont/100=number of door openings since last reset	0	999	1	-
	Firmware version	Fir	Danfoss software version number	-	-	-	-
	Hardware version	Har	Danfoss hardware version number	-	-	-	-