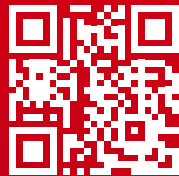


Control your refrigeration installation and achieve significant benefits

ERC Controllers



When scanning this QR code you go to www.danfoss.com/erc

50%

total costs savings

Achieve unrivalled savings by optimising your appliance with the powerful ERC 101 and 102 multipurpose controllers.

ERC 101 Controller for Medium-Temperature units (Chillers)

Benefits

- Compressor protection against high/low voltage
- Fully compatible with flammable refrigerants
- Pre-programmed and ready to use



ERC 101 parameters

Menu	Parameters	Cod	Description	Min	Max	Unit	Def
Thermostat	Setpoint	Stp	Setpoint	-50	80	C	2
		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
Alarm	Air temperature adjust	tAD	Air Temp Adjust	0.0	20.0	K	0
		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 temperature	dtT	Temperature 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 temp., 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 Temperature	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
	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 compr. 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	-	-	-	-



ERC 102 controller for Low-Temperature units (Freezers)

Benefits

- Compressor protection against high/low voltage
- Fully compatible with flammable refrigerants
- Pre-programmed and ready to use
- Smart fan control
- Unique algorithm to control defrosting

ERC 102 parameters

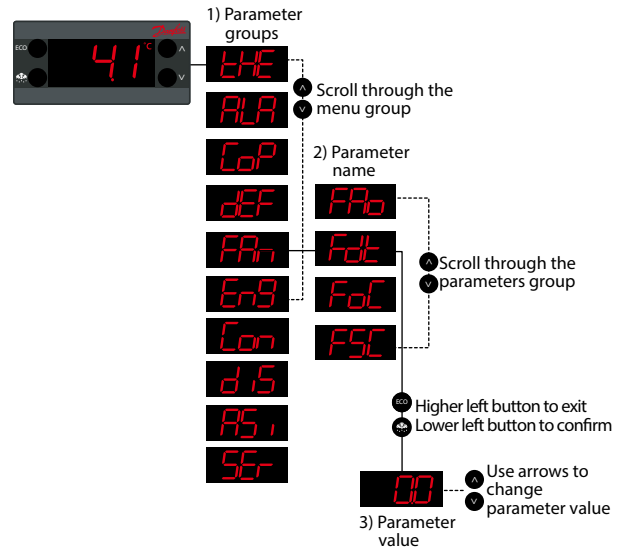
Menu	Parameters	Cod	Description	Min	Max	Unit	Def
Thermostat	Setpoint	Stp	Setpoint	-50	80	C	2
		tHE	Thermostat settings				
	Setpoint adjustment ratio	SPr	Current setpoint adjustment value diF * SPr	0.0	1.0	-	0.0
Alarm	Differential	diF	Thermostat differential	0.0	20.0	K	2.0
	Air temperature adjust	tAD	Air Temp Adjust	0.0	20.0	K	0
		ALA	Alarm setting				
Compressor	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
Defrost		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 min)	0	60	min	0
	Error stop time	Est	Compressor stop time if temperature sensor is not working (0-60 min)	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 sec between power ON & compressor being activated	0	300	Sec	180
Fan		dEF	Defrost Setting				
	Defrost type	dFt	No: defrost function is disabled, nat: OFF-cycle defrost (natural defrost)	no	nat	-	EL
	Terminating temperature	dtT	temperature at which defrost stop (evap temp. 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	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
Energy manag.		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
Condenser Prot.	Fan stop cycle	FSC	The number of seconds the fan does not run when the compressor is OFF	0	960	sec	0
		Eng	Energy management				
Display	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	Temperature increase for ECO mode relative to normal mode	0	10	K	2
	Condenser Alarm Limit	Con	Condenser protection settings				
	Condenser Block Limit	CAL	If condenser sensor exceeds this temperature, alarm is activated	0	85	C	75
Assignments	Condenser OK limit	CBL	If this temperature is exceeded, compressor will be stopped	0	85	C	85
	Condenser Low Temperature	CoL	Temperature at which compressor may start after a stop due to exceeding "CBL"	0	85	C	60
		CLL	Temperature below which the compressor is not allowed to start	-50	20	C	-5
Service		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
	S2 Application	S2A	Assignment of inputs and outputs				
	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	-	EuA
	DI configuration	diC	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	doC	doC: Door contact, contact closed when door closed; doo: door contact, Contact open when door closed, buS:communication	doC	doo	-	buS
	DO2 configuration	o1C	Relay output 1. compressor (CoP) 2. Heater HeT	CoP	HeT	-	CoP
	DO3 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
Service	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
	Voltage value	uAC	Service				
	Relay 1 counter	rL1	Current main power supply voltage	0	270	Vac	-
	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	Thousands of cycles of compressor relay since manufacture	0	999	1000	-
Defrost time counter	dnt	Compressor run time since last defrost	0	999	min	-	
Door open counter	ont	Duration of last defrost cycle [min]	0	999	min	-	
Firmware version	Fir	ont/100=number of door openings since last reset	0	999	1	-	
Hardware version	HAR	Danfoss software version number	-	-	-	-	
			Danfoss hardware version number	-	-	-	-

Technical specifications

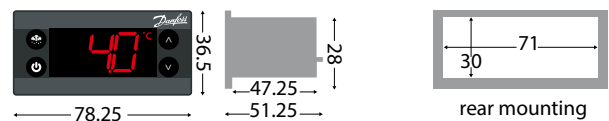
FEATURES	DESCRIPTION
Power supply	100 VAC - 240 VAC 50-60 Hertz, automatic switch mode power supply
ERC 101 rated power	Less than 0,5 W
ERC 102 rated power	Less than 0,7 W
ERC 101 input	1 Danfoss NTC temperature probe
ERC 102 inputs	2 Danfoss NTC temperature probes
Compressor output	1xCompressor relay: UL60730: 16 A resistive/FLA10/LRA60 EN60730: 16(16)A
ERC 102 auxiliary output	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
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 Category D (UL94-V0)
Resistance to Heat & Fire	
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

Operations menu

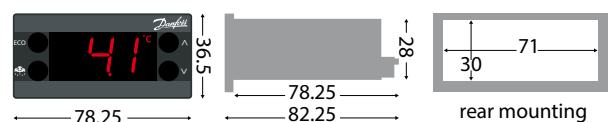
Press 5 sec both right buttons to access the menu



ERC 101 dimensions (mm)



ERC 102 dimensions (mm)



ERC solutions kit

ERC101 - p/n 080G3180 Accessories	
080G3132	ERC 101, 1-RELAY, Red LED w/o Buzzer
077F8761	NTC Sensor, 1500mm; Cabinet - 3 pole
080G3308	ERC Mounting Clamp Straight
080G3830	Lockpart with ERC printing Quick Instruction
ERC102 - p/n 080G3181 Accessories	
080G3108	ERC102C, 3-RELAY, Red LED w/o Buzzer
077F8761	NTC Sensor, 1500mm; Cabinet - 3 pole
077F8790	NTC Sensor, 1500mm; Defrost - 2 pole
080G3308	ERC Mounting Clamp Straight
080G3832	Lock part with symbol printing Quick Instruction

