eliwell

EWPC 961

freezer controls

WHAT IT IS

The EWPC 961 is a temperature controller specifically designed for refrigeration applications and provides time control for off-cycle defrost management.

HOW IT IS MADE

- **Housing: black ABS plastic, self-estinguishing**
- **Dimensions: front 74x32 mm (2.913x1.260"), depth 67 mm (2.637")**
- **Protection: the instrument front-panel is waterproof IP65; an optional snap-on cover can be supplied to provide additional protection of the rear terminal block**
- **Connections: screw terminal block (2.5 mm^2; one wire each terminal onl)**
- **Display: 12.5 mm LED (0.50")**
- **Push buttons: located on front panel**
- **Output: one (1) SPDT relay 8(3)A 250V~**
- **Input: PTC probe**
- **Resolution: 1 °C (°F)**
- **Accuracy: better than 0.5% of full scale**
- **Power supply (depending on model): 12 V~/= or 24 V~/=**

GENERAL DESCRIPTION

The EWPC 961 is a temperature controller specifically designed for refrigeration applications and provides time control for off-cycle defrost management.

It incorporates an output relay for compressor control and a PTC sensor input.

A number of parameters are displayed alphanumerically to set up the instrument for each specific application.

The EWPC 961 is supplied in the popular "32x74" ELIWELL.

OPERATION

The EWPC 961 is designed to operate strictly as a cooling control, which means that the switching differential is positive: the compressor cuts off at setpoint and is started at a temperature of set plus differential. The on-board microprocessor provides several timing functions for the defrost; the defrost cycle as well the defrost cycle duration are user selectable.

At the start of each defrost cycle, the compressor is simply stopped, regardless of the temperature control circuit.

In addition, the EWPC 961 offers several system protection features, all easy to understand and easy to program.

FRONT KEYPAD

SET: push to display the setpoint temperature; the "DEF/SET" status light will blink. The setpoint can be changed within 5 seconds with the "UP" or "DOWN" button. The control will automatically switch back to normal operating mode within 5 seconds; the last entered setpoint will stay in memory.

UP: used to increase the setpoint value, as well as the parameter when in programming. When held down for a few seconds, the change rate accelerates.

DOWN: same functions, except to decrease a value.

DEFROST: push to initiate a manual defrost cycle (override of programmed defrost start; programmed time resets to zero). Manual defrost can not be started while in setpoint or in parameter programming mode. This button must be activated for 3 seconds to start a defrost; the "DEF/SET" status light will come on and the compressor is stopped.

Led "COMP": status light of the compressor output.

Led "DEF/SET": blinks during setpoint display/change. When Led is on the defrost is in progress.

PARAMETER PROGRAMMING

Programming is easily accessed by holding the "SET" button down for more than 4 seconds; the first parameter is displayed while the status light "DEF/SET" remains blinking during the programming period.

Other parameters are accessed with the "UP" and "DOWN" button.

With the "SET" button, the actual setting of each parameter is displayed. To change a parameter setting, push the "SET" plus the "UP" (or "DOWN").

The system will automatically return to its normal operating mode a few seconds after the programming procedure is completed or interrupted.

DESCRIPTION OF PARAMETERS

d: differential.

LS: Lower Set.

Setting of the lower user-access setpoint limit.

HS: Higher Set.

Setting of the upper user-access setpoint limit.

CA: CAlibration.

Temperature read-out offset to allow for possible error due to probe location.

rP: relay Protection.

Select relay status in case of probe defect.

on = compressor ON in case of probe defect;

DEFAULT SETTINGS - STANDARD MODELS

Parameter	Description	Range	Default	Unit
d	differential	1…15	2	°C / °F
LS	Lower set	–55…99	–55	°C / °F
HS	Higher set	–55…99	99	°C / °F
CA	CAlibration	–15…15	0	°C / °F
rP	relay Protection	on / oF	oF	flag
PS	Protection System	0…3	0	number
Pt	Protection time	0…31	0	seconds
dS	defrost System	dF / rt	rt	flag
dI	defrost Interval	0…31	8	hours
dE	defrost Endurance	1…99	15	minutes
dL	display Lock	n / y	y	flag
dr	defrost read-out	C / dF	C	flag
do	defrost at (power) on	n / y	n	flag
dd	defrost delay at (power) on	0…99	0	minutes

CONNECTIONS

EWPC 961

compressor

thermostat PTC probe

POWER SUPPLY
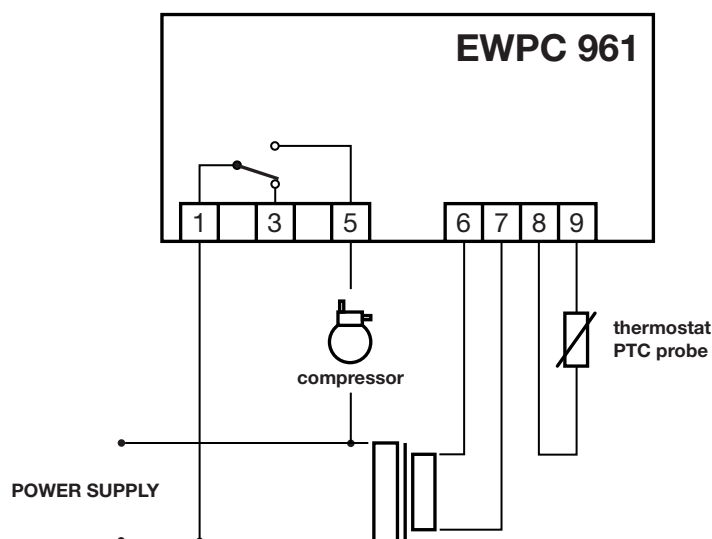
oF = compressor OFF in case of probe defect.

PS: Protection System-short cycle.
Select type of compressor protection desired (the actual time delay is set with the next parameter):
0 = delay before start - in seconds;
1 = delay before start - in minutes;
2 = delay after stop - in minutes;
3 = delay between starts - in minutes.
Pt: Protection time.
Time delay setting for compressor short-cycle protection; expressed in seconds (0 to 31) if PS = 0 or in minutes (0 to 31) if PS > 0 (see parameter PS).
dS: defrost System (computation).
dF = digifrost® Feature; defrost start time is based on total compressor running time.
rt = real time; defrost initiation frequency is based on real time.
Time between defrost starts is always the same.
dI: defrost Interval.

Defrost start frequency in hours; the time is calculated based on the selection of parameter "dS".
dE: defrost Endurance.
Total (maximum) length of a defrost cycle, expressed in minutes.
dL: display Lock.
Temperature display is locked in during a defrost cycle.
n = no (read-out will continue to display the actual temperature, even during defrost);
y = yes (read-out is locked in).
dr: display read-out.
Select the type of visualization in case of temperature display lock during defrost (see parameter "dL").
C = the temperature displayed at the start of a defrost is locked in and does not change during this cycle.
dF = during the defrost the label "dF" (deFrost) is displayed to indicate a defrost is in progress.
do: defrost at (power) on.

Selects whether the system should go through a defrost cycle at start-up (or after a power failure).
n = no;
y = yes.
dd: defrost delay at (power) on.
Time delay of defrost at (power) on; expressed in minutes.

INSTALLATION
The instrument is designed for flush panel mounting. Insert the unit through a 71x29 mm panel cut-out and affix with the U-bracket supplied. The ambient temperature around the instrument should be kept between –5 and 65 °C (23…149 °F).
Select a location which will not be subject to high humidity or condensation and allow some ventilation to provide cooling to the instrument.

ELECTRICAL WIRING
The instrument is equipped with an internal screw terminal block suitable for max 2.5 mm^2 wiring (one wire each terminal only).
Make sure that the power supply corresponds with the rating shown on the instrument, i.e. 12 V~/⎓ ±15% (VDE/UL version) or 24 V~/⎓ ±15%.
The 2-wire PTC type probe does not require polarity and can easily be extended by using common 2-lead wire.
It is strongly recommended to run the probe cable separate from line voltage wiring. Also, it is good practice to install the tip of the probe in upright position, to avoid moist from entering into the stainless steel sensor housing.
The output relay contacts are voltage-free and are suitable for in-line switching of compressors up to 0.5 HP at 220 V~ (or 0.25 HP to 110 V~). For larger loads, an external contactor must be used.

ERROR ANNOUNCIATION
The instrument is provided with only one error message "E1", both in case of shorted sensor and in case of sensor break, or sensor absence. The "E1" error message also appears in the event of underrange of the system temperature (–55).
In the event of overrange of the system temperature (99), the "99" value will blink first, then the "E1" error message will be displayed in case the probe will exceed the value of 150

TECHNICAL DATA
Housing: black ABS plastic, self-estinguishing.
Dimensions: front 74x32 mm (2.913x1.260"), depth 67 mm (2.637").
Mounting: flush panel mount with mounting bracket.
Protection: the instrument frontpanel is waterproof IP65; an optional snap-on cover can be supplied to provide additional protection of the rear terminal block.
Connections: screw terminal block

(2.5 mm^2; one wire each terminal only).
Display: 12.5 mm LED (0.50").
Push buttons: located on front panel.
Data storage: non-volatile EEPROM memory.
Operating temperature: –5…65 °C (23…149 °F).
Storage temperature: –30…75 °C (–22…167 °F).
Output: one (1) SPDT relay 8(3)A 250V ~.
Input: PTC probe.
Resolution: 1 °C (°F).
Accuracy: better than 0.5% of full scale.
Power supply (depending on model): 12 V~/⎓ ±15% or 24 V~/⎓ ±15%.

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