EWLC 74 rel. 12/97 ing

blind controller for refrigerated units

WHAT IT IS

EWLC 74 is a microprocessor based instrument developed to control refrigerated units.

HOW IT IS MADE

- **Housing: resin PC+ABS plastic with V0 extinguishing grade**
- **Size: front 76x34 mm, depth 62 mm**
- **Mount: panel on 71x29 mm hole**
- **Protection: a shed (tile) for dap mount on the back of the instrument is available on request to protect the screw terminal block**
- **Connections: on screw terminal block for wires max 2.5 mm^2 (one wire only per contact in compliance with VDE regulations)**
- **Commands: on front and side (through 2 jumpers)**
- **Outputs: 1 output on N.O. relay for compressor 8(3)A 250V AC and 1 exchange output on relay 8(3)A 250V AC for the defrost system**
- **Analogue inputs: two NTC probe for temperature control and defrost management**
- **Consumption: 1.5 VA max**
- **Power supply: 230 Vac. Others on request**

GENERAL DESCRIPTION

EWLC 74 is a microprocessor based instrument developed to control refrigerated units. It is provided with an internal transformer (230/12 Vac), two relay outputs to drive the compressor and the defrost system, and two inputs for NTC probes to control the room temperature and the end of defrost.
A series of parameters (invisible and factory programmable through the serial port only) allows to configure the instrument according to the application.
EWLC 74 is available in the 32x74 Eliwell standard format.

OPERATION

In refrigerated applications temperature control is carried out with the differential set to positive values; the compressor stops when the Setpoint is reached and restarts when the temperature reaches Setpoint plus the differential. The Setpoint can be set through the trimmer on the front panel.
Two accessible jumpers located on the side of the instrument allow to select two defrost types: electrical (the compressor is stopped) or cycle inversion (warm gas; the compressor keeps on operating); it is also possible to select the number of daily defrosts (two or four daily defrosts can be chosen in the standard version, see parameters “dit1” and “dit2”).
A series of invisible parameters - which can only be programmed in factory through the serial port - allows to set the defrost start temperature (below which th defrost call is enabled), the defrost stop temperature and a maximum time (time-out) after which defrost is always stopped.
A series of “safety systems” (delay in activation, minimum disable time, minimum time between two activations) protects the compressor from close starts.
Other parameters make the instrument configurable for different applications.

COMMANDS ON FRONT PANEL

There is no display. A button is available for manual activation of the defrost cycle: by pressing and releasing it a defrost cycle is started, provided that suitable conditions are present.
A trimmer on the front panel allows to set the operation setpoint for the compressor: its range can be customised and set through two parameters.
Compressor Led: led (red) related to the compressor relay, on when the compressor is working.
Power-on Led: line led (green), indicates the instrument is powered.
Defrost Led: led (yellow) related top defrost, on when defrost is in progress, blinking in case of manual defrost.
The power-on led turns on when the instrument is started and the lamp-test is performed by the defrost led only for about 5 seconds.

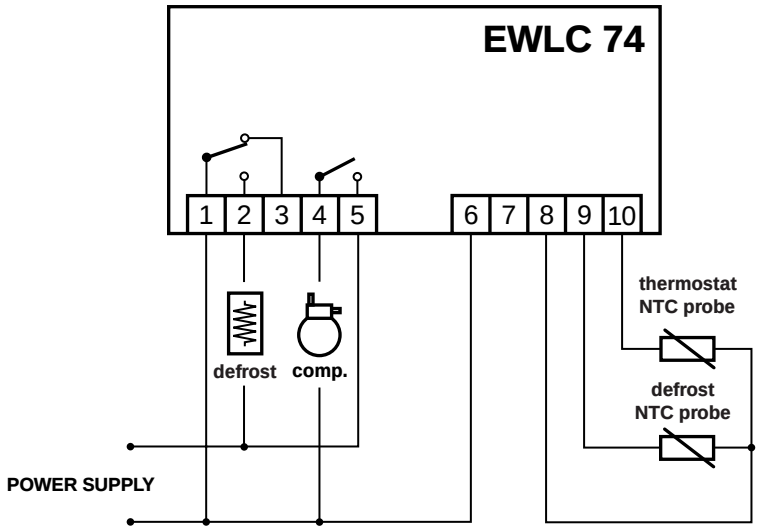
PARAMETERS DESCRIPTION

diF: diFferential.
Setpoint intervention differential. In refrigerated applications temperature control is carried out with the differential set to positive values; the compressor stops when the Setpoint is reached (condition detected by the regulation probe) and restarts when the temperature reaches Setpoint plus the differential.
dit1: defrost interval time 1 (jumper ON):
Defrost initiation frequency, in hours.
dit2: defrost interval time 2 (jumper OFF):
Defrost initiation frequency, in hours.
doh: defrost offset hour.
Delay time for defrost start, in minutes.
dEt: defrost Endurance time-out.
Defrost time-out; after this time defrost is stopped even if the defrost end temperature is not reached; in minutes.
dSt: defrost Stop temperature.
Defrost end temperature.
dnt: defrost enable temperature.
Temperature value below which the defrost call is enabled.
POS: POStpone defrost.
When active it allows to delay defrost at the end of the defrost interval until suitable conditions for defrost occur.
n = no; y = yes.
cPS: compressor Probe Set.
End of scale value for the Setpoint trimmer.
cPo: compressor Probe offset.
Start of scale value for the Setpoint trimmer.
dt: drainage time.
Dripping time; after defrost the compressor is stopped for a time set by this value (in minutes).
dPo: defrost (at) Power on.
Allows to select or deselect defrost at startup.
n = no; y = yes.
cPP: compressor Probe Protection.
Allows to select the state of compressor for faulty probe.
oF = relay OFF for faulty probe;
on = relay ON for faulty probe;
dc = duty cycle; ON and OFF times for the

DEFAULT SETTINGS - STANDARD MODELS

Parameter	Description	Range	Default	Unit
diF	diFferential	-50…50	2	°C
dit1	defrost interval time 1	0…18	12	hours
dit2	defrost interval time 2	0…18	6	hours
doh	derfost offset hour	0…255	0	min
dEt	defrost Endurance time	0…255	30	min
dSt	defrost Stop temperature	–50…50	9	°C
dnt	defrost enable temperature	–50…50	0	°C
POS	POSpone defrost	n / y	n	flag
cPS	compressor Probe Set	–50…50	–10	°C
cPo	compressor Probe offset	–50…50	–30	°C
dt	drainage time	0…255	0	min
dPo	defrost (at) Power-on	n / y	n	flag
cPP	compressor Probe Protection	oF / on / dc	on	flag
Ont	On time compressor	0…255	5	min
OFt	OFF time compressor	0…255	5	min
ctP	compressor type Protection	nP / don / doF / dbi	nP	flag
cdP	compressor delay Protection	0…255	0	min
odo	output delay (at) on	0…255	0	min
drt	defrost restet time	n / y	y	flag
Oct	On compressor time	0…255	0	min

CONNECTIONS



relay are set by parameters “Ont” and “OFt”.
Ont: On time (compressor).
Compressor ON time; in minutes.
OFt: OFF time (compressor).
Compressor OFF time; in minutes.
ctP: compressor type Protection.
Allows to select the type of protection from close compressor starts (the time is set through the following parameter):
nP = no Protection. No protection.
don = delay on start. Delay on relay activation.
doF = delay at switching oFf. Minimum time for relay deactivation.
dbi = delay between two successive starts. Minimum time between two subsequent relay activations.
cdP: compressor delay Protection.
Time related to the previous parameter; in minutes.
odo: output delay (at) on.
Activation delay for relays at instrument startup; in minutes.
drt: defrost reset time.
It allows to enable the count of timed defrosts in case of manual call through defrost key pressure.
n = no; y = yes.
Oct: On compressor time.
Minimum compressor on time before the activation of the inversion valve in cycle inversion defrosts, in minutes.

MECHANICAL MOUNT

EWLC 74 is designed for panel mount. Drill a 29x71 mm hole and introduce the instrument fixing it with the special bracket (included).
The operating temperature range for correct operation is from –5 to 65 °C. Do not install the instrument in moist and/or dirty places; it is suitable for operation in environments with an ordinary pollution level. Leave enough room for air circulation by the cooling holes of the instrument.

ELECTRICAL CONNECTIONS

EWLC 74 is provided with screw terminal blocks for the connection of electrical wires with a maximum 2.5 mm^2 section (one wire only per terminal in compliance with VDE regulations).
The instrument is provided with two outputs, a N.O. contact for the compressor and an exchange contact for the defrost system. Outputs on the defrost relay are free from voltage. Do not exceed the maximum contact capacity: 8(3)A AC 250V. In case of heavier loads use a contactor with a suitable power.
Ensure the voltage of the EWLC 74 power complies to requirements.
The two NTC probes do not require insertion polarity and can be lengthened using sa standard bipolar cable (please remember that too long probes imply worse instrument performance for the EMC electromagnetic compatibility).
The probe cables shall be kept far from relay cables and from the power supply both for EMC and safety reasons. The European safety regulations state that the power supply and relay contacts (and, generally, all parts with dangerous voltage) shall be separated from very low safety voltage contacts (probes) by insulations and distances suitable to guarantee at least a double or reinforced insulation. EMC requirements for correct operation suggest/impose to put maximum care in this separation through the use of insulating channels separated by suitable cable fixing systems.

TECHNICAL DATA

Housing: resin PC+ABS plastic with V0 extinguishing grade.
Size: front 76x34 mm, depth 62 mm.
Mount: panel on 71x29 mm hole.
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Connections: on screw terminal block for wires max 2.5 mm^2 (one wire only per con-

tact in compliance with VDE regulations).
Commands : on front and side (through 2 jumpers).
Data storage : on non volatile memory (EEPROM).
Operating temperature : –5…65 °C.
Storage temperature : –30…75 °C.
Outputs : 1 output on N.O. relay for compressor 8(3)A 250V AC and 1 exchange output on relay 8(3)A 250V AC for the defrost system.
Analogue inputs : two NTC probe for temperature control and defrost management.
Consumption : 1.5 VA max.
Power supply : 230 Vac. Others on request.

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