INTIEL

THE ELECTRONICS ON YOUR SIDE

Controller for Refrigeration Systems HLC-2.1

User's Manual

1. Application

The Controller is designed to manage the operation of refrigeration units, installed in showcases, refrigeration chambers and so on, by switching the compressor and the heating element of the evaporator during defrosting.

2. Technical data

1. Power supply: 220V/50Hz/AC
2. Outputs commutation current:
   - Of the compressor: 16A/250V/AC
   - Of the defrosting heating element: 10A/250V/AC
   - Of the evaporator fan: 10A/250V/AC
   - Of the showcase lighting: 10A/250V/AC
3. Resistance against strokes and vibrations: up to 2g
4. Digital display: two sectional
5. Precision class: +/- 1^0C

3. Operation

The Controller is encased in a plastic board equipped with a transparent plastic cover. The connection between the Controller and the refrigeration units is provided by dismountable terminals, located on the Controller main board in accordance with the mentioned scheme bellow.

The Controller measures the temperature in the refrigeration chamber and the evaporator by temperature sensors connected with two-core cables to the main board. The measured temperature is indicated on a two positional digital display with precision of 1 ^{0}C, in the range of (-40^{0}C) – (+40^{0}C). The thermo regulator, keeping the assigned temperature level in the refrigeration chamber has a fixed different of 3.5 ^{0}C. The different can be adjusted by the trimmer-potential-meter P3 in the range of (2 ^{0}C) – (10 ^{0}C). The assignation of the desired temperature is provided by a button and a trimmer-potential-meter on the front Controller panel. The button has two positions – "X" and "W". When the button is in position "X" (released) on the digital display is indicated the current temperature in the chamber. And if it is in position "W" (pressed) – the assigned temperature level is indicated. The assignation range can be selected by replacing the jumpers located under the front Controller panel. The meaning of the rest indications on the front panels are as follows:

- Red indication – active during the defrosting of the evaporator
- Green indication – showing that the compressor is switched on
- Green indication – active when the evaporator fan operates

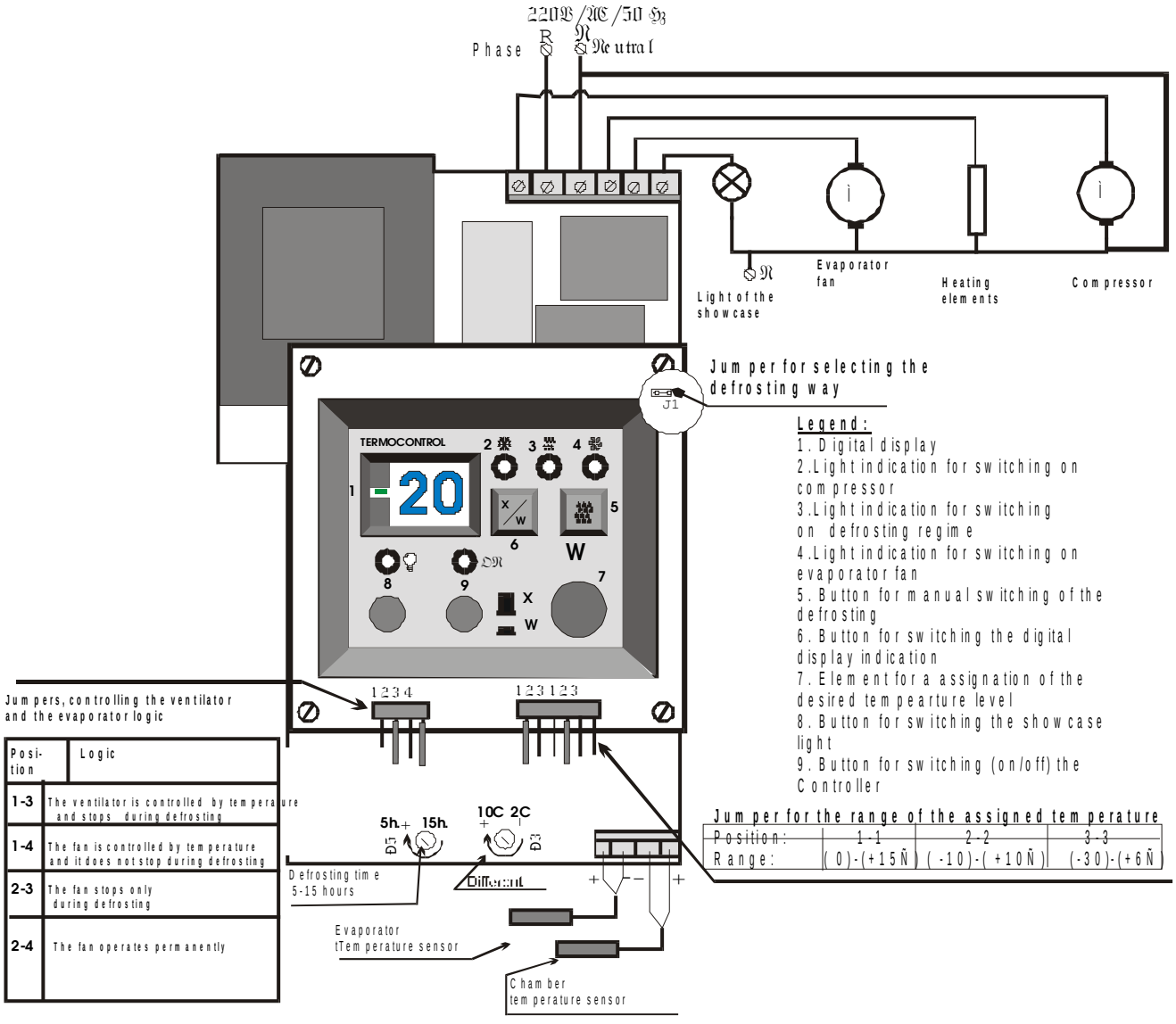
The defrosting of the evaporator is provided once during a certain period of time between 5 and 15 hours. That time period can be adjusted by trimmer P5 located on the main board. The defrosting is done when the evaporator temperature rises up to +8 ^{0}C. There is one hour limitation concerning the defrosting in case the heating element of the evaporator is failed or such an element is not installed. In case the evaporator temperature does not exceed its assigned positive temperature level in one our time during the defrosting, the controller will start the frosting regime after passing that time. The Jumper J1 of the main board is to be placed, in order the defrosting is done by inversion of the Freon direction. In this case during a defrosting regime the compressor keeps operating.

Also, the defrosting regime can be settled manually by pressing the upper right button of the Controller for 40 seconds. It must be considered that going manually into the defrosting regime is only possible when the evaporator temperature is bellow 2 ^{0}C.

If the power supply of the operating compressor drops in short time and subsequently it would be restored, the compressor will not be able to start operation immediately, because its inlet and outlet pressures are not equalized. Therefore, the Controller provides the compressor start-up, 4 minutes after the power supply is restored. Thus the compressor start-up is done always at equalized pressures, avoiding its overloading during the start-up. Such a pause of the compressor operation can be provided by the thermo regulator, after a short command for stopping that can be happen during adjusting of the assigned temperature level in the operation regime. Generally the Controller provides stopping of the compressor operation for not less than 4 minutes.

- The evaporator fan is regulated by the Controller by means of the specific control logic, selected by the jumper J2 of the front panel.
- There are two other buttons on the front panel:
  - Button 8 – switch (on/off) the light in the refrigeration showcase.
  - Button 9 – switch off generally the control, without switching off the Controller power supply

3. Wiring



4. Warranty

The warranty period is 24 months following the purchase date of the unit or its installation by an authorized Engineering Company, but not exceeding 28 months after the production date. The warranty is extended to the malfunctions that occur during the warranty period and are result of the production reasons or defective used parts.

The warranty does not relate to malfunctions corresponding to not-qualified installation, activities directed to the product body interference, not regular storage or transport.

The repairs during the warranty period can be done after correct filling of the manufacturer warranty card

Warranty Card

Manufacturer: *INTIEL*	
Product type	
Production number	
Production date	
Dealer confirmation	
Purchase date	
Invoice number	
Dealer's name, address and stamp	
Seller's name and signature	
Installation Date	
Date	
Company (address, stamp)	
Installer's name and signature	