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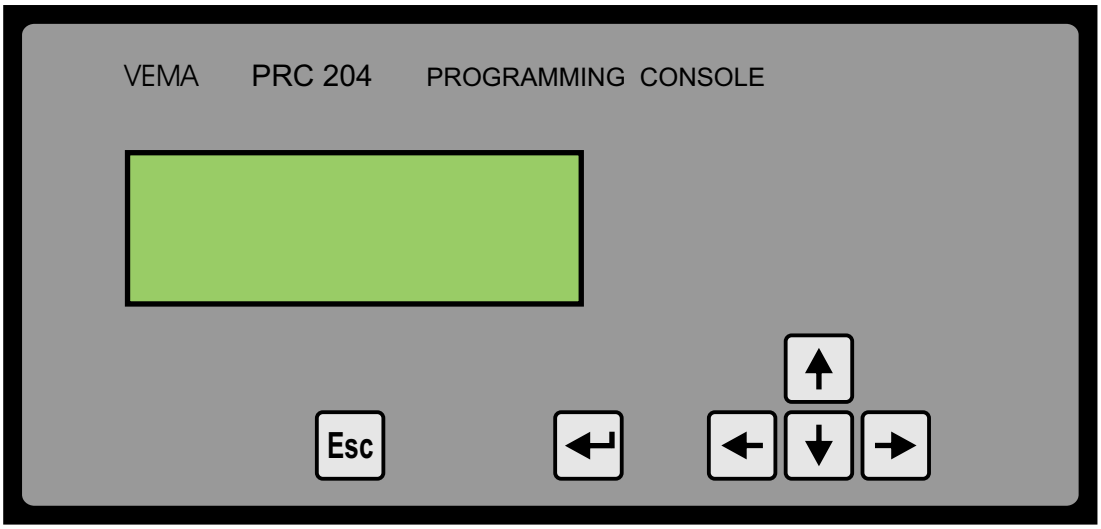
PROGRAMMING CONSOLE
PRC 204



USER MANUAL

I. Introduction

The programming console ***PRC 204*** provides the user interface to the executive devices that control the heating power of the oven and the speed of the preforms in the oven.

The programming console is designed to operate with all types of power controllers ***PCN xxx***, motor control drives and NPN inductive(10-30V) or mechanical switches.

Output signals are: RS232 to connect with the power-controller that takes care of all heating zones; analog signal from 0 to 10VDCcontrols the chain speed and power supply of 18 VDC for inductive switches.

The parameter values can be changed by the user through the console keypad. The parameters are indicated on the console display in different menus. The user can change the values of the heating zones and the speed of the preforms in the oven. A discrete switch is used to measure the time it takes for one couple of preforms to be blown, i.e. the machine productivity.

All parameters can be changed when selected. For one-step change use the left and right buttons, whereas for a step by 10 user can use the up and down buttons.

II. Technical specifications

-Number of preset programs for different moulds	- 14
- Number of heating zones in each program	- up to 8
- Heating zones and chain speed rates	- 0 to 99.9%
- Parameter resolution	- 0.1%
- Maximal period between preforms	- 99.9 sec.
- Productivity resolution	- 0.1 sec.
- Discrete input **In1***	- 24V/10mA optoisolated
- Discrete (or analog) input **Ain****	- 24V/10mA or 0-10V
-Analog output for speed setting	- 0 to 10V/5mA
- Supply voltage	- 187- 242VAC/48-62Hz
- Dimensions	- 85x180x65 mm
- Operating temperature	- 0 up to 50 °C
- Storage temperature	- -10 up to 60 °C

Any of the following predefined combinations can be set on request:

* **In1** can be used as counting input for the preforms or enable/disable input for all zones

** **Ain** can be analog input for the `Offset` parameter (0-10V -> -50 to +50 %) or discrete enable/disable input for all heating zones.

III. Parameter mnemonics and navigation

The console display can work in two modes - MONITOR and PROGRAM. In MONITOR mode the user can watch the current value of the desired parameter, i.e. the machine productivity and how the heating zones are controlled. In PROGRAM mode the values of the parameters can be changed. The navigation between the two modes is done by (Esc) and (↵) buttons. The PROGRAM mode is always indicated by a cursor. The parameters are also split into two menus - MAIN and ZONE. On power-up the display starts in MONITOR mode and reads the MAIN menu:

MONITOR mode:	PROGRAM mode:	
Program No **XX**	Program No **XX**	on the first line;
Produced **XXXXXXXXX**	Items/Imp. **XX**	on the second line;
Cycle time **XX.X** sec	Velocity **XX.X** %	on the third line;
Offset * ±**XX.X** %	Offset * ±**XX.X** %	on the fourth line.

The parameter Program No is used to select one of the console programs as current. Each program is a set of power values for each of the heating zones. Thus, the user can create programs of suitable values of the heating zones for each mould type. When in PROGRAM mode, the user can go to the ZONE menu from this parameter by pressing (↵).

The second parameter (Produced in MONITOR mode) on the main menu is used to count up the preforms. It will increment with **XX** on each impulse on the discrete input **In1***, where **XX** is the value of the Items/Imp. parameter (the second one in PROGRAM mode).

The third parameter on the main menu reads Cycle time in MONITOR mode, and Velocity in PROGRAM mode. When in MONITOR mode, it shows the period of time for one couple of preforms to be produced, i.e. this is the productivity of the machine. In PROGRAM mode, the user can change the value in percent to set (by the means of the analog output) the proper speed of the chain.

The Offset parameter allows to add an offset (up to ±50%) to all heating zones without the need to change each of the heating zones values in ZONE menu. The offset can be manual or through the analog input **Ain****, depending on the type of the PRC204.

On power-up of the console, the user can press the (↵) button to switch to PROGRAM mode in order to change some of the parameters. In this mode a cursor appears and the user can move it using the arrow buttons to select one of the parameters. Pressing the (↵) button again will set the cursor on the selected parameter value indicating that a change can be made. After setting the desired value using the arrow buttons, the user can save it by pressing the (↵) button, or go back to parameter selection without saving by pressing the (Esc) button. To return into MONITOR mode, the user should press (Esc) button and the cursor disappears.

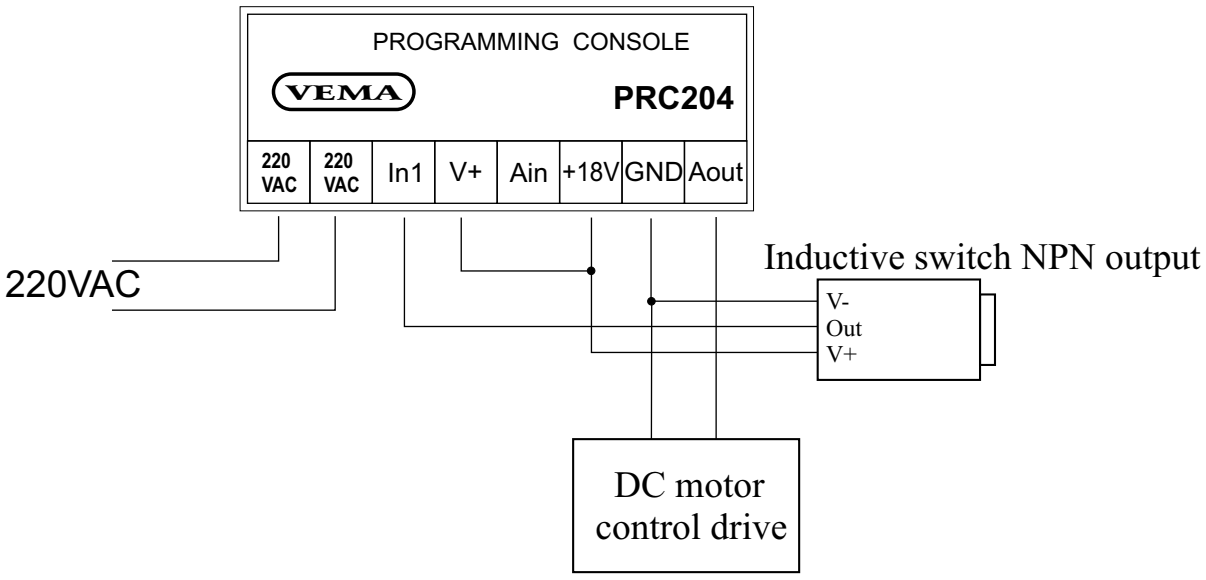
The ZONE menu can be reached in two ways. When in MONITOR mode in MAIN menu, pressing the (Esc) button will put the display into ZONE menu. The second way is to select a new value of the Program No parameter in PROGRAM mode. In ZONE menu, the user can watch and change the value of each heating zone on the same manner as in the MAIN menu. When no cursor is present, the display is in MONITOR mode and the current measured values for each zone is indicated. In PROGRAM mode, the user can change the set value for any zone.

All parameters, except for the Program No, can be disabled. The meaning of this is that no matter what the set value of such a parameter is, it is considered to be zero. To disable a parameter, the user should switch to PROGRAM mode, then select the desired parameter and after that keep the (↵) button depressed. Now pressing (Esc) button while keeping the (↵) button depressed, will disable the parameter. Each disabled parameter is marked by the asterisk symbol "*" in front of it (for the Offset parameter the asterisk appears in the place of the decimal point). In the same manner each disabled parameter can be toggled enabled and the asterisk symbol will disappear. Thus, each zone can be disabled from the ZONE menu, or all zones can be disabled when the Offset parameter is disabled. In order to stop the movement of the preforms, the user can disable the Velocity parameter. Disabling the second parameter Produced will clear the current value of the produced counter. When any of the inputs **In1*** or **Ain**** is used to enable/disable all zones, then Offset parameter will be disabled by this same input depending on the type of the PRC204.

Some of the abnormal situations are displayed as follows:

- when a zone is disabled, its value reads as 'off' in MONITOR mode;
- when the Velocity parameter is disabled, the parameter Cycle read as "N/A";
- when connection between the console and the power-controller is not present or failed, a message "not connected" is blinking on the first line of the display;
- when no information about the current zone value is present (, e.g. no connection to the power-controller or another failure), its value is marked as "N/A" in ZONE mode.

IV. Mechanical connection and mounting

The Console is assigned for mounting on facet panels of electrical units. The slot for mounting should have a rectangular shape of (80+0.4)x(176+0.4) mm. To secure the console on the panel, use the attaching screws.

The connector pin attachment of the console is pictured on its rear panel. The connecting wires must be isolated and have thickness of 0.35 to 0.75 mm^2. The recommended scheme of connection follows below: