

CONTACTLESS DEVICES ON THYRISTORS

G.V. Mamedova

*Department of Electric Equipment and Automation of Productions, Azerbaijan State Oil Academy
 Baku, Azerbaijan, gulaya68@mail.ru*

Abstract- Switching semi-conductor devices (thyristors) are widely applied in contact less schemes of management, protection. Contact less electric devices on thyristors are perspective for their application as switches in chains of constant and variable currents.

Keywords: Thyristor, The Management Scheme, The Protection Scheme, Semi-Conductor, Switching Devices.

I. INTRODUCTION

In contact less schemes of management and protection switching semi-conductor devices (thyristor) are widely applied. Thanks to a split-hair accuracy of switching and small dimensions at considerable capacity thyristor are rather perspectives for their application as contact less switches in a chain of constant and variable currents. They can carry out functions of contact less relays, switches, powerful contact less etc. Thus thanks to absence of moving parts and a great speed of switching they provide the best results, than mechanical switches contact less and the relay. Thyristors possess the big advantages at their use in the schemes demanding frequent switching's where elimination of deterioration of contacts and reliability increase has essential value.

II. METHODOLOGY

The elementary scheme thyristor the alternating current switch is resulted on Figure 1. Management of work of this device is carried out by the button of management. The pressure divider on resistors R_2, R_3 serves for restriction of an operating current. The management button can be replaced by the automatic device reacting to a current, pressure, speed etc. Considered switch use in schemes of protection and management of various power-plants.

On Figure 2 the elementary scheme thyristor the switch of a direct current with push-button management is resulted. At button short circuit B positive pressure on an operating electrode thyristor moves and it opens. Thus the management current is limited to resistor R . After inclusion thyristor the condenser C is charged to pressure of a source of a direct current. By pressing the switching-off button "O" the condenser C it is discharged through a loading chain. For the period of the condenser category positive pressure is put to the cathode thyristor.

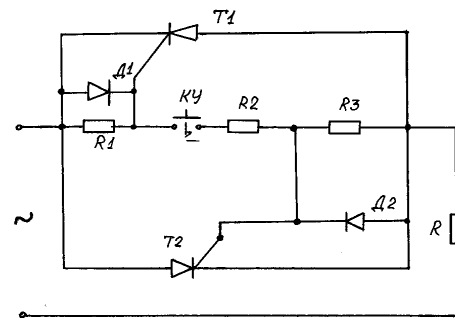


Figure 1. The scheme thyristor the switch alternating current

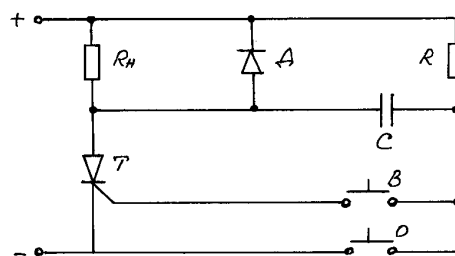


Figure 2. The scheme thyristor the switch direct current

III. DISCUSSIONS

The scheme thyristor the switch with protection against super currents with use of additional thyristor T_3 and a stabilatron of C_m is resulted on Figure 3.

At short circuit of the button of inclusion B positive pressure on an operating electrode of thyristor T_1 moves, and it opens. After inclusion of a thyristor the condenser C is charged to full pressure of a source of a direct current. At occurrence of super currents the power failure on shunt R_{sh} becomes more than threshold pressure of a stabilatron, and it passes a current on an operating electrode of thyristor T_3 which thus instantly opens. At open thyristor T_3 the condenser is discharged and thyristor T_1 is locked, interrupting an emergency current. Switching-off of the switch and thyristors is carried out by the button O .

Similar thyristors switches can be used in schemes of rheostat start-up of engines of a direct current. One of such schemes is shown on Figure 4. In this scheme analogue linear contactor is thyristor T_1 . At opening its

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BIOGRAPHIES



Gulaya Veysal Mamedova is a Doctor of Technical Sciences, and chairs of the "Electric Equipment and Automation of Plants" in Azerbaijan State Oil Academy, Baku, Azerbaijan. She has ended her doctorate in power faculty of the Azerbaijan State Institute of Oil and Chemistry (nowadays Azerbaijan State Oil Academy) in 1990. Prof. Mamedova has defended her thesis for a Doctor of Technical Sciences degree on a theme of "Working out of Methods of Calculation and Designing of Electromechanical Converters with Induction Levitation Element" in 2007.