Automatic Direct Torque Control System For 3 Phase Induction Motor

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Abstract - Selkon Motor Doctorworks under CVM Technology to offer 100% safety to motors. It's automatic program technology to increase motor life by 30%.Offering 2 years full warranty to our motor doctor, first time in our country. It has eight functions this motor is used for water pump and electric vehicle applications Selkon Motor Doctor works under CVM Technology to offer 100% safety to motors. It's automatic program technology to increase motor life by 30%. Offering 2 years full warranty to our motor doctor, first time in our country. This motor is used for water tank application and pumping of water in and out of the system.

Keywords: Starter, Control Panel, Timers, Pump Controller, Drip Irrigation System.

I. INTRODUCTION

The optimization search techniques are progressively being applied to electrical actuators under growing demands of their applications. This trend has been motivated by the increased availability of powerful computational platforms. Among these numerical techniques, particularly those with evolutionary algorithms, Genetic Algorithms (GAs) are invading many fields, such as curve fitting-based identification methods and engineering optimal design. The preferred for most exigent cases since they are more rigorous than the analytical ones. Also, they are known as probabilistic optimization methods and classified as the most recent and powerful computational products of the artificial intelligence techniques. Despite their numerous benefits, they are rather slow. They deal efficiently with large-sized optimization problems, such as identification of the Induction Machine (IM) Park's model.

The model can be adequately used in control techniques for adjustable-speed drives and can also be useful for the design of static electronic converters fed induction motor drives. In fact, such an identification problem has been dealt with by many authors. They trait numerous approaches looking for accurate and reliable identification methods of parameters authors whichcan be used to assess and predict the steady-state machine performances. These methods do not deal with all parameters since the greater the parameter number, the more complex the resolution becomes. Also, they necessitate mechanical variable measurements and/or direct variable load tests that are difficult, particularly in high-power cases.

II. EXISTING METHOD

DOL Direct Online Starter is the simplest form of motor starter that connects the motor directly to the power supply. It consists of a magnetic contactor that connects the motor with a supply line & an overload relay for protection against overcurrent. There is no voltage reduction for safe starting a motor. Therefore the motor used with such starters has below 5 hp rating. It has two simple push buttons that start & stop the motor. Pressing the start button energizes the coil that pulls the contactors together to close the circuit. And pressing the stop button de-energizes the contactor's coil & pushes its contacts apart thus breaking the circuit. The switch used for turning ON/OFF the power supply can be of any type such as rotary, level, float, etc.   Although, this starter does not provide safe starting voltage the overload relay provides protection against overheating & overcurrent. The overload relay has normally closed contacts that energize the contactor's coil. When the relay trips, the contactor's coil de-energize and break the circuit.

III. PROPOSED SYSTEM

The speed control of three phase starter induction motor speed control system We need to control the speed of the motor We are an outstanding name engaged in manufacturing and supplying broad variety of Starter, Control Panel, Timers and Pump Controller suitable for bore well and submersible pumps which is used in agriculture, domestic, TWARD board, Panchayat union, Collectrate and Industrial pump sets. Currently around 200 varieties of high quality motors switch gear items are manufactured and selling with one year warranty to the customers and dealers across the country.

We are also dealing with irrigation water management equipment like Drip Irrigation Gate Valve Controller. In order to serve the farmers energy requirements for pumping water to their agricultural fields, we are taking solar projects under Government of Tamil Nadu named as 90%subsided Solar Pump Systems, and also for Commercial Subsided ON & OFF Grid Solar Power Systems. As per their requirements, our clients can avail these products both in standard as well as in customized specifications. The offered products are widely used in various industries due to the features like easy operations, high efficiency, rigid construction and longer service life. Due to our advanced and hi-tech infrastructural facility, we are manufacturing and supplying our products within limited time frame. Our state-of-the-art quality examination unit has made us competent to supply products that are in conformance of global quality parameters. We make sure that our products are carefully examined by our quality inspectors before delivering, so that no error or discrepancy occurs at our clients' end. Further, our offered products are appreciated by our clients for their robust construction, user friendly nature and durability. In addition, we have been focusing on total contentment of our quality aware clients with prompt deliveries of these products. This has enabled us to gain clients from all over the country.
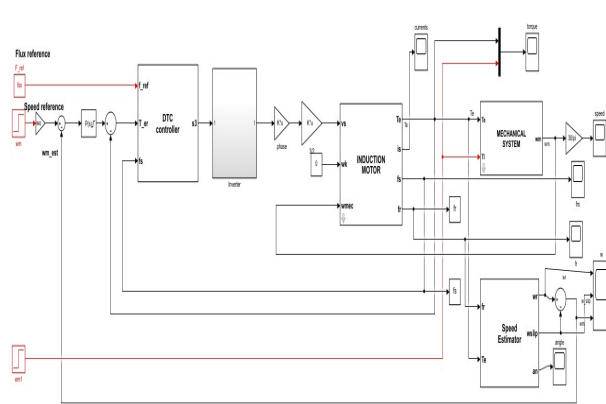
IV. SIMULATION RESULTS

Fig.1.Direct torque control of induction motor

The electrical energy is supplied by a three-phase AC/DC diode rectifier connected to a 460 V, 60 Hz grid equivalent. The DC bus is connected to a three-phase, two-level converter. This converter generates the variable voltage and frequency required for variable-speed operation of the 150 HP induction motor. In addition, a braking chopper is connected to the DC bus in order to dissipate the kinetic energy of the motor during deceleration. Induction motors operate by a coupling of magnetic fields in the stator and rotor. Currents in the stator produce a rotating magnetic field that induce currents and a lagging magnetic field in the rotor. The magnetic field interaction causes the rotor to spin at an angular speed less than the rotational speed of the stator field.

V. HARDWARE IMPLEMENTATION

Fig.2.3PHASE 10HP PANEL

VI. CONCLUSION

Finally we designed the water pumping system for self-starter applications for water pumping applications A Starter is a device that controls the use of electrical power to equipment, usually a motor. As the name implies, starters "start" motors. They can also stop them, reverse them, and protect them. Starters are made from two building blocks, Contactors and Overload Protection. Pump starters prolong the life of your pumps and other pump components that otherwise may be prematurely aged or damaged. Pump starters are primarily intended for use in temporary installations for drainage pumps and are capable of starting one pump at a time.

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