ANSI Low Voltage Power Breaker 277 VAC Motor
Eaton Corporation
March 2016

Introduction:
ANSI Low Voltage Power Breaker with a UL listed 277 VAC Charging Motor. The option enables the charging motor to use the line to neutral voltage directly, eliminating the need for a step down voltage transformer.

Operation:
The main purpose of the motor is to enable remote charging of the breaker closing mechanism. This motor configuration is available on all Magnum breaker offerings (DS, SB, DC, IEC). Not only does the 277 VAC motor allow for remote operation, it removes the need for a transformer and reduces component costs associated with stepping the voltage down from line control voltage.

UL Approval:
UL testing was performed on the new motor to list the product to UL 1066. This standard covers stationary or drawout breakers with 2, 3, or 4 poles, that are manually or power operated with or without electromechanical or solid-state type trip devices. To get approval, the motor passed testing for all breaker frame sizes. The test mandates the motor operate successfully for 1500 operations. The breaker was charged more than 12,500 operations required for the lowest ampere rating Magnum circuit breaker. The test consists of 25 operations at 85% voltage, 25 operations at 110% voltage and the remaining 12,450 operations at 100% operating voltage.

Improvements:
The newly UL rated 277 VAC Motor allows the OEM to reduce the cost of their current control scheme. Where an additional transformer was needed in previous set-ups, this new motor allows for a direct connection of power to the breaker and motor itself.

This eliminates the need for a control power transformer, reducing both size and cost to the customer. The non-industry standard 277 VAC Motor is a unique offering, having less components in the circuit improves reliability because there are less components that can potentially fail.

Installation:
Since the newly offered motor envelope is identical in construction to the lower rated motors the installation is the same as demonstrated in the following figures. This allows for seamless integration of the new product into current customer applications.

Figure 1&2: Reference Motor Installation
SUMMARY:

This new 277 VAC Magnum Motor offering allows for seamless integration into current customer applications while increasing the reliability of the control scheme. This is possible because a step down transformer is not needed with the new 277 VAC rating. Remote operation is still possible since it is an integral component of the existing design. With less parts to operate the maintenance costs and time associated with the product will also be decreased.

REFERENCES:

UL 1066 Standard


AUTHORS:

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