APPLICATION STUDY: ATC DIVERSIFIED ELECTRONICS DEVELOPS EFFECTIVE, INEXPENSIVE SOLUTION FOR MANUAL RESTARTS FOLLOWING POWER INTERRUPTIONS AND UNDERVOLTAGES

THE CHALLENGE:

The $1 Million Problem

A major operator of oil and gas refineries approached ATC Diversified Electronics to engineer a solution to the costly problem of critical application restarts after power service undervoltages (defined as a power drop within 90% of peak) and interruptions. Refineries rely on a complex series of pumps, numbering in the hundreds, to move material through the refining process. When even a small a power blip happens, each pump must be restarted manually. ATC's customer was experiencing approximately 12 such incidents each year, at a total cost of approximately $1 million annually.

THE SOLUTION:

Fix the Problem, but Within Set Parameters

The customer requested more efficient restarts, however several technical parameters also had to be met. Restarts had to be staggered, as simultaneous occurrences would place undue burden on power capacity. The solution had to address an undervoltage or power interruption period no greater than 4, 6, or 10 seconds in duration. An overload neutral disconnect feature was needed as to not interfere with functioning of a thermal overload relay. Finally, the device needed to be in a plug-in format and easily changeable.

THE RESULT:

Introducing the MAR Series Motor Auto-Restart Relay

In just four months, the ATC team developed the MAR Series Motor Auto-Restart Relay. Following a momentary drop or interruption of the control voltage, it bypasses a motor's start switch to re-energize the starter coil.

When control voltage drops below the trip point while the motor is running, the delay begins. If control voltage returns before the delay expires, the adjustable restart delay begins. Upon expiration of the restart delay, the internal relay energizes for the duration of the output interval, providing restart. When multiple restart controllers are used in the same facility, the adjustable restart delay allows a customized restart sequence, limiting the maximum in-rush current.

As an additional safety feature, if control voltage fails for longer-than the time delay or the motor was not initially running at the time of failure, the unit will not restart the motor.

THE FUTURE:

Beyond Oil & Gas

The MAR Series can help a wide range of industries beyond oil and gas– any industry that has a production process with critical components, as long as the process is not in a hazardous area and doesn't have permissive circuits. The ATC team has added a range of output interval restart ranges, restart delay ranges, an option for an O/L relay neutral disconnect feature, and the choice of 8-pin or 11-pin plug-ins. For an industrial facility, the MAR Series gets power to critical applications in a restart environment, improves process uptime, and is a highly cost-effective solution that can save hundreds of thousands of dollars, or even millions, each year.

atc DIVERSIFIED ELECTRONICS

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