



ASIC/1-8355 Sequence Changes

Effects: ASIC/1-8355

Date: June 15, 1998



Note No. TE002

Change in ASIC/1-8355 Sequences - Request for feedback

We are proposing to modify the sequences of the ASIC/1-8355 with regard to the control algorithm used for heating and cooling.

The current ASIC/1-8355 up to and including 355a version 1.7 uses an algorithm based on a duty cycle model. This sequence calculates the heating or cooling requirement using a P+I algorithm. The result is used to calculate the percentage of a base time (typically 600 seconds or 10mins) that the resource (compressor, electric heater or similar) should be ON. This sequence was used in the ASIC/1-7610 family of products over many years. It differs from that used in the ASIC/1-4300/8305.

We have seen that in some applications, dependent on the type of unit and the operating requirements, this algorithm controls in a cyclic nature. Since the unit can only turn on a resource once per base time, each component can only start a maximum number of 6 times per hour when the default value is used. However in humid environments it may be preferable to keep the unit on longer per run time to achieve the maximum amount of dehumidification. For units where noise is an issue, reducing the starts to a minimum with some loss of control accuracy is also a desired trade-off.

We are proposing to modify the sequences to use a temperature based algorithm. The new sequences will calculate exactly as the Sequence object in the ASIC/2 products, that is switch based on temperature. Hysteresis and minimum On and Off timers will also be included.

With this new calculation if a controller Zone Temperature is increases above setpoint, the first stage will energize. It will stay on for a minimum on time and continue on until the zone temperature falls below setpoint by 1 DegF. No timebase is used. Where a second stage is used, it will have an offset setpoint. At (say) 1 DegF above setpoint the second stage would energize and remain energized until setpoint is reached.

We are aware that both sequences are valid. It is not possible to include all of the sequences within the same firmware and our intention is to offer two firmware versions One version will continue with the existing algorithm, the second will offer the revised sequences.

Please consider these changes carefully. We would be interested in your comments and questions. Work will begin at the end of this week and will be completed by month end. If you would like to have an input to this process please call me by the end of the week.

Matt Clayton