

Watlow's New **STREAMLINE** Heating System with ATS Technologies Provides Temperature Uniformity, a Reduced Footprint, Extensive Diagnostics and Fast Development Times

Heating and controlling the thermal processes on the gas lines, forelines and exhaust lines in a semiconductor tool are typically complex due to the number of components and maze of wiring all located within a small area. These factors make installation and maintenance cumbersome, time consuming and expensive. Also, today's customers require more thermal data on the health of the system to ensure temperature uniformity, which is required to keep the lines up and running smoothly. In addition, the business cycles of the semiconductor market can cause long lead times when supply cannot keep up with demand. These issues, and others, make the job of the semiconductor equipment engineers more challenging than ever before.

Due to the many years of experience working in the semiconductor market and deep domain knowledge, Watlow® recently developed the **STREAMLINE™** heating system solution featuring its patented **Adaptive Thermal Systems®** (ATS™) technologies that can help solve the market pain associated with the complexity of typical systems. Watlow's solution is an innovative, dynamic and complete thermal system that provides temperature uniformity, a reduced footprint, extensive diagnostics and faster development times.

Watlow has removed the nuisance components from the heater and moved those capabilities and functions into the **EZ-ZONE® RMT** temperature controller offering closed loop control with integrated over-temperature safety protection for each heater with just two wires. This helps reduce installation errors and provides easier troubleshooting. The need to integrate fewer controllers makes installation quicker and easier by cutting the required heater connections by up to two thirds. It also reduces costs and provides a more spatially-efficient system. In addition, Watlow's heater design enables part reuse for future systems, which reduces SKUs and overall lead times.



Watlow's new **STREAMLINE** heating system enhances your application with an aesthetically pleasing, yet powerful solution with less wires and more functionality.

Features and Benefits

Ease of installation

- Lowers customer installation costs and reduces risk of incorrect wiring compared to legacy systems

Spatially-efficient system

- Reduces wiring complexity and the number of controllers needed in a system

Reusable heater components

- Shortens development time

Closed loop control for each configurable zone, even down to discrete heaters

- Enables improved uniformity or desired thermal profiles
- Enhances performance
- Allows heaters to be used as zone master or series heaters through wire harness configuration

Enhanced diagnostics

- Allows user to understand what is happening in every zone
- Offers real-time diagnostics about every heater in the application

Connects with EtherCAT®, Ethernet, DeviceNet™

- Aligns with industry standard communications protocols

Agency approvals

- Meets all required industry certifications and requirements



Watlow's New *STREAMLINE* Heating System includes the following:

EZ-ZONE RMT Controller with *ATS Technology*

Specifications

- Input voltage
 - 85-240VAC
- Output voltage per channel
 - 2-218 volts
- Zones of control
 - 6 to 12 independent outputs
- Data/diagnostics
 - Real-time temperature, voltage, wattage, resistance, alarms and more through comms
- Maximum power is dependent on load resistance, ambient **EZ-ZONE RMT** temperature, input voltage and number of zones

Silicone Rubber Heaters with *ATS Technology*

Specifications

- Heater and jacket material
 - Flexible silicone rubber coated fiberglass fabric
- Thermal insulation
 - Silicone sponge
- Heater geometries
 - Straights (1/4", 3/8", 1/2" I.D.)
 - Minimum length = 2 inches
 - Maximum length = 18 inches
 - VCR unions, valves, other
- Operating temperature up to 180°C
- Maximum resistance = 600 ohms
- Lead length = 4 inches
- Standard connectors = reverse sex amp CPC

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