

SERIES IMP

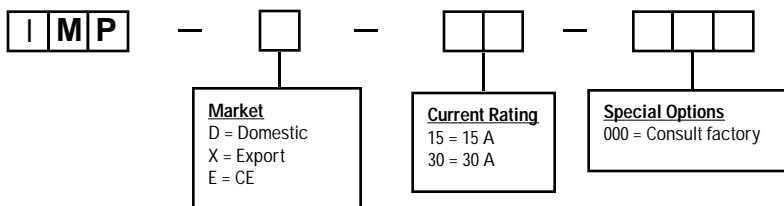
Athena's Series IMP Modules use microprocessor-based circuitry to perform all required control functions. Units have built-in diagnostics and are fully self-tuning—setpoint temperatures are maintained without the need to manually preset or adjust the control temperature.

This control module is also available as a portable single-zone controller, the PIM series. Refer to page 64.

- Simultaneous digital setpoint and digital temperature indication
- Available in single zone, 15- and 30-amp temperature controllers, as well as for multi-zone temperature control systems
- Compatible with all previous "G" series main frames
- CompuStep® feature removes moisture from the heater before full power is applied
- CompuCycle® feature improves response time, reduces thermal fatigue and prolongs heater life by applying AC power smoothly and continuously
- Manual control for non-thermocouple applications, provides standby or "weekend" heat or to manually control temperature if a thermocouple fails
- Diagnostic and protection features include power "on," power to load, manual made, and over/under temperature, plus indicators and system protection for reversed and open thermocouples
- Available standby heat and alarm accessory module (SAM) automatically sets all zones for standby, or "weekend" heat, and provides visual and audible alarms for over/under temperature (see page 62)




Ordering Information



SPECIFICATIONS

PERFORMANCE SPECIFICATIONS

Control Mode	CompuCycle® system
Temperature Range	Ambient to 999°F, or ambient to 535°C
Temperature Reset	Automatically corrects reset to within 2°F (1°C) at all settings
Control Accuracy	±1.0°F (±0.5°C) dependent on the total thermal system
Temperature Stability	±0.5% of full scale over the ambient range of 32 to 140°F (0 to 60°C)
Calibration Accuracy	Better than 0.2% of full scale
Power Response Time	Better than 0.13 seconds
Compensated Manual Mode	Maintains constant output power to within 1% of manually set power level with line voltage variation from 192 to 264 volts. Power control range is from 0 to 100%, using the CompuCycle system power drive.
Over Temperature Indicator	The upper segment of the leftmost display will be "on" and the whole display flashes at about 2 Hz when the temperature error exceeds +30°F (+17°C)
Under Temperature Indicator	The lower segment of the leftmost display will be "on" and the whole display flashes at about 2 Hz when the temperature error exceeds -30°F (-17°C)
TC Break Indication	Flashing  on the leftmost display (in closed-loop and CompuStep)
TC Reverse Indication	Flashing "≡" on the leftmost display (in closed-loop and CompuStep)
No Heat Indication	Flashing "—" center segment only of the leftmost display (in closed-loop)
CompuStep® System Control Mode	Variable stepping voltage, phase fired
CompuStep System Duration	Approximately 5 minutes
CompuStep System Output Voltage	Steps approximately from 25 V _{RMS} to 170 V _{RMS} with 240 Vac line input
CompuStep System Holding Temperature	256°F (125°C)
CompuStep System Override Temperature	200°F (93°C)
Operational Mode Priority	a. TC break, TC reverse and No Heat override CompuStep System b. Manual mode overrides TC break, TC reverse and No Heat

INPUT SPECIFICATIONS

Thermocouple (T/C) Sensor	Type "J", grounded or ungrounded
External (T/C) Resistance	Greater than 1000 ohms
T/C Isolation	Isolated from ground and supply voltages
Cold Junction Compensation	Automatic, better than 0.02°F/°F (0.01°C/°C)
Input Type	Potentiometric
Input Impedance	22 megohms
Input Protection	Diode clamp, RC filter
Input Amplifier Stability	Better than 0.05°F/°F (0.03°C/°C)
Input Dynamic Range	Greater than 1000°F (535°C)
Common Mode Rejection Ratio	Greater than 100 dB
Power Supply Rejection Ratio	Greater than 90 dB

OUTPUT SPECIFICATIONS

Voltages	240 Vac nominal, single phase 120 Vac available
Power Capability	15 amperes, 3600 watts @ 240 Vac, 30 amperes, 7200 watts @ 240 Vac
Output Switch	Internal solid state triac, triggered by ac zero crossing pulses
Overload Protection	Triac and load use high speed fuses. Both sides of ac line are fused.
Power Line Isolation	Optically and transformer isolated from ac lines. Isolation voltage is greater than 2500 volts.

CONTROLS AND INDICATORS

Setpoint Control	Precision 3 digit pushbutton switch, direct reading; Range: 0 to 999°F (535°C); Resolution: 1°F (1°C); Accuracy: Better than 0.5°F (0.3°C)
Manual Power Control	Single turn potentiometer, calibrated scale; Range: 0-100%; Linearity: 10%
Mode Control	3-position sliding switch selects mode of operation 1. top position-Manual mode 2. middle position-Auto mode 3. bottom position-Auto mode with CompuStep system
Power ON/OFF	Rocker switch, UL, CSA, VDE approved

ELECTRICAL POWER SPECIFICATIONS

Input Voltage	240/120 Vac, + 10% - 20%
Frequency	50 Hz ± 3 Hz, 60 Hz ± 3 Hz
DC Power Supplies	Internal generated, regulated and temperature compensated
Module Power Usage	Less than 3 watts, excluding load