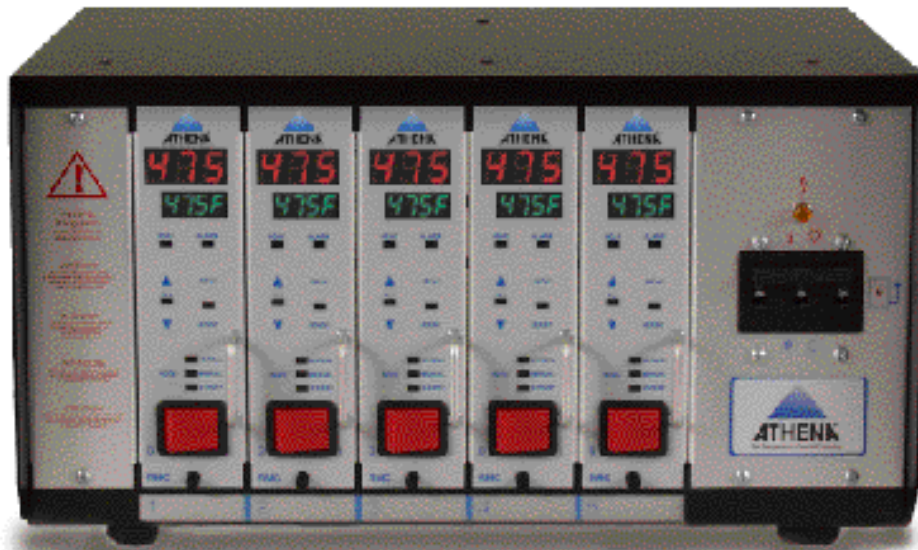


Modular

HOT RUNNER
CONTROLS

athenacontrols.com

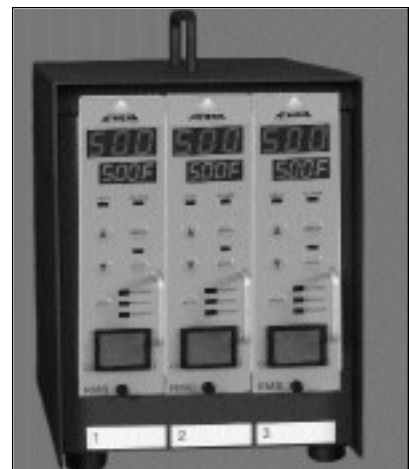


ATHENA CONTROLS, INC.
5145 Campus Drive
Plymouth Meeting, PA 19462-1129
U.S.A.

HOT RUNNER CONTROL SYSTEMS

Athena has achieved its reputation as the leader in the field of "hot runner" temperature control through a series of firsts in the plastics industry:

- Microprocessor-based self-tuning temperature controllers, from basic units to sophisticated modules featuring Modbus® communications and ZonePilot™ software for remote configuration via a Palm® handheld device
- 1-, 2-, and 3-zone portable models and modular mainframe systems up to 48 zones
- Wide range of cables, connectors, and accessories, including cables compatible with Incoe® and Fast Heat® hot runner systems
- Compu-Step® heater conditioning system
- Compu-Cycle® power control system
- Built-in diagnostics
- SafeChange™ "hot swap" feature provides safe disconnect in case of inadvertent removal of module from energized mainframe
- Automatic power hold if thermocouple breaks
- Self-regulating manual power controllers
- Mainframes field-convertible to global power supply voltages
- ZonePilot™ software for remote configuration via Palm® handheld devices
- Series K control computers for hot runner control applications up to 264 zones



Incoe, Fast Heat, ITC, MCS, and Palm are registered trademarks of their respective companies. Modbus is a registered trademark of Schneider Automation. Athena, Compu-Step, Compu-Cycle, ZonePilot, and SafeChange are registered trademarks or trademarks of Athena Controls, Inc.



TABLE OF CONTENTS

	Page
How to Order a Hot Runner System	4
Series IMP Control Module	6
Series RMB Control Module	8
Series RMC Control Module	10
Series SY Dual-Voltage System	12
Series SAM Standby Alarm Module	14
Mainframe Configurations	15
Mainframe Ordering Information	16
Tri-Zone™ Controller Mainframe	17
Series IMP/P and RMC/P Portable Controllers	18
Portable Controller Mainframes	19
Hot Runner System Components	20
Power and Thermocouple Cables	22
Custom and Combination Cables	23
Thermocouple and Mold Power Connectors	24
Connectors for Portable Systems	25
Mainframe Connector Diagram	26
Terminal Mounting Boxes	27
Hot Runner System Accessories	28

HOW TO ORDER A HOT RUNNER CONTROL SYSTEM

ORDERING SPECIFICATIONS

- | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 1. Specify type of controller required. | IMP, RMB, or RMC |
| 2. Amperage required per zone? (heater wattage x voltage) | 15 or 30 amp |
| 3. How many zones of control are required? | Up to 48 zones |
| 4. Specify the mainframe cabinet. <ul style="list-style-type: none">• Size frame required is the number of control modules plus any accessory modules.• If 15 amp modules are used, specify MFL style frame.• If 30 amp modules are used, specify MFH style frame.• If an accessory module or Series RMC controller is used, specify an MFL-C or MFH-C style frame.• If a current/voltage monitor is required, specify CV suffix in mainframe ordering code. (IMP only; not applicable to RMB or RMC) | See page 15 |
| Note: Contact factory for combination mainframes (15 A and 30 A together). | |
| 5. Specify Accessory Modules. <ul style="list-style-type: none">• IMP modules can be used with a Standby Alarm Module (SAM) (Refer to page 14). | SAM |
| 6. Specify cables, connectors, and terminal mounting boxes. | See pages 22 to 27 |
| 7. Choose optional mainframe accessories: <ul style="list-style-type: none">Floor standsTransformer kitsClosure panels | See page 28 |

Notes: Athena's mainframes are compatible with all D-M-E Company's G SERIES and SMART SERIES®, ITC, MCS, Yudo®, and Incoe® brand mainframes.
Use "D" ordering suffix for 60 Hz and °F
Use "X" ordering suffix for 50 Hz and °C
Use "E" ordering suffix for 50 Hz and °C, CE-compliant

NOTES

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.

- Simultaneous digital setpoint and digital temperature indication
- Available in 15-amp modules as well as single-zone 15- and 30-amp portable temperature controllers
- Compatible with all D-M-E Company's G SERIES and SMART SERIES®, ITC, MCS, Yudo®, and Incoe® brand mainframes.
- Compu-Step® feature removes moisture from the heater before full power is applied
- Compu-Cycle® 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
- SafeChange™ circuit "hot swap" feature allows safe removal and replacement of module
- Available standby heat and alarm accessory module (SAM) automatically sets all zones for standby, or "week-end" heat, and provides visual and audible alarms for over/under temperature (see page 14).

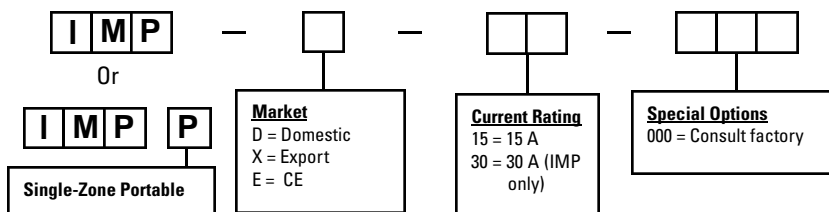
Now...with SafeChange™ Circuit Hot Swap Feature!



Series IMP/P Portable Single-Zone Controller



Ordering Information




Note: The 30 amp Series IMPs are twice as wide as the 15 amp model and has a circuit breaker instead of a power switch.



SERIES IMP TECHNICAL 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/Open Heater 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

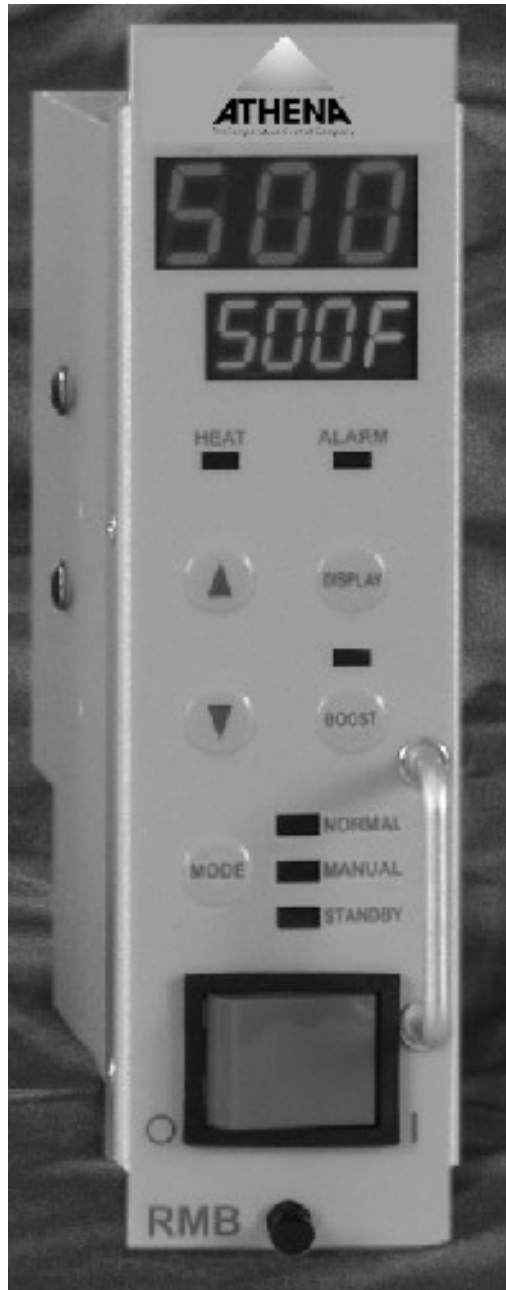
ELECTRICAL POWER SPECIFICATIONS

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

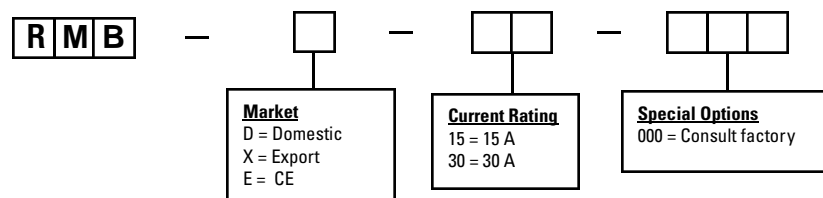
SERIES RMB

The Athena Series RMB is a micro-processor-based, single-zone temperature controller specifically designed for runnerless molding applications. It features an easy-to-use operator keypad, two LED displays, and three discrete indicators for heat-current, alarm and manual mode.

- Compatible with all D-M-E Company's G SERIES and SMART SERIES®, ITC, MCS, Yudo®, and Incoe® brand mainframes.
- Accepts Type J or Type K thermocouple input (jumper selectable)
- Auto-tuning, with adjustable proportional band and rate
- Bumpless auto/manual transfer
- Compu-Step® bakeout feature prevents moisture at startup
- Built-in loop break, short, open, and reverse thermocouple protection
- Built-in triac safety protection
- Ground-fault protection
- Preset alarms at 30° F (17°C)
- Jumper-selectable soft-start mode
- Current monitor feature displays average current to load
- SafeChange™ circuit "hot swap" feature allows safe removal and replacement of module
- CE-compliant



Ordering Information



Note: The 30 amp Series RMB is twice as wide as the 15 amp model and has a circuit breaker instead of a power switch.



SERIES RMB TECHNICAL SPECIFICATIONS

PERFORMANCE SPECIFICATIONS

Auto Control Mode	Compu-Cycle® system
Control Accuracy	±0.1°F (±0.1°C) dependent on the total thermal system
Temperature Range	32 to 999°F (0 to 537°C)
Temperature Stability	±0.5% of full scale over the ambient range of 32 to 131°F (0 to 55°C)
Calibration Accuracy	Better than 0.2% of full scale
Power Response Time	Better than 300 milliseconds
Process Sampling	100 milliseconds (nominal)
°F/°C	Jumper-selectable
Compu-Step® System Control Mode	Variable stepping voltage, phase fired
Compu-Step System Duration	Approximately 5 minutes
CompuStep System Output Voltage	Steps approximately from 25 V _{RMS} with 240 Vac line output, phase-fired
Compu-Step System Override Temp	200°F (93°C)
Operational Mode Priority	a. TC open, TC reverse, Shutdown and Open heater override CompuStep system b. Manual mode overrides TC open, TC reverse

INPUT SPECIFICATIONS

Thermocouple (T/C) Sensor	Type "J" or Type "K", grounded or ungrounded (switch-selectable)
External T/C Resistance	Maximum 100 ohms for rated accuracy
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	10 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 999°F (537°C)
Common Mode Rejection Ratio	Greater than 100 dB
Power Supply Rejection Ratio	Greater than 70 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
Overload Protection	Triac and load use high speed fuses. Both sides are fused (GBB)
Power Line Isolation	Optically and transformer isolated from ac lines. Isolation voltage is greater than 2500 volts.
Output Drive	Internal solid state triac, triggered by ac zero crossing pulses

CONTROLS AND INDICATORS

Setpoint Control	Two buttons up or down. Resolution: 1°F (1°C)
% Power Control	Two buttons up or down
Mode Control	Push button switch with LED indicator for manual mode
Display	Top: 3-digit filtered LED Bottom: 4-digit filtered LED
Status Indicators	Heat-current output Alarm
Power On-Off	Rocker Switch, UL, CSA, and VDE approved

ELECTRICAL POWER SPECIFICATIONS

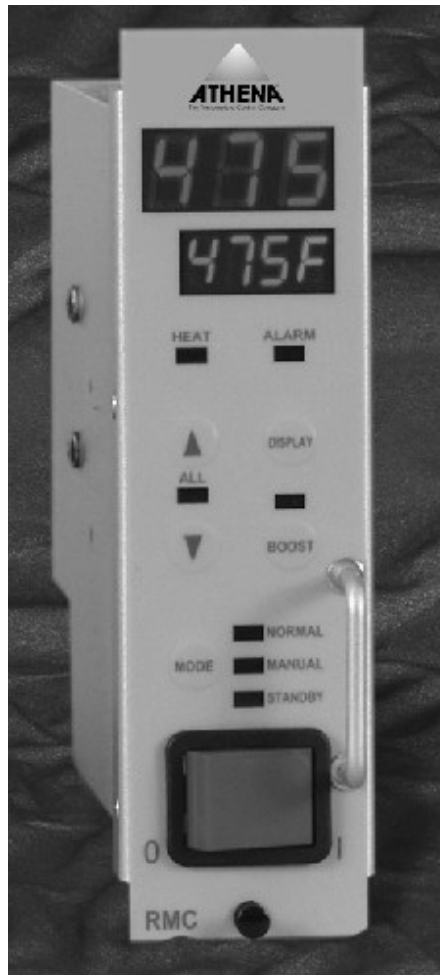
Input Voltage	240/120 Vac, + 10% - 20%
Frequency	50 Hz ± 3 Hz, 60 Hz ± 3 Hz
DC Power Supplies	Internal generated, regulated and temperature compensated
Module Power Usage	Less than 3 watts, excluding load

SERIES RMC

The Athena Series RMC brings new and highly productive benefits to injection molders looking for a modular hot runner controller that's flexible, easy to set up, and simple to operate.

Using the popular Modbus® communications protocol, the next-generation RMC gives users the ability to set or change all zones, either remotely from a desktop computer, from a Palm® handheld device, or (with the ALL command) from any other individual RMC module in the mainframe.

- Compatible with all D-M-E Company's G SERIES and SMART SERIES®, ITC, MCS, Yudo®, and Incoe® brand mainframes.
- Choice of three default modes for open thermocouple condition
- Built-in triac safety protection
- Accepts J or K thermocouple input (jumper selectable)
- SafeChange™ circuit "hot swap" feature allows safe removal and replacement of module
- Compu-Step® bakeout feature prevents moisture at startup
- Built-in loop break, short, open, and reverse thermocouple protection
- "Boost" mode for temporary % of power output increase
- Ground-fault protection
- Adjustable setpoint limits
- Stores highest temperature detected
- Current monitor feature displays average current to load
- CE-compliant



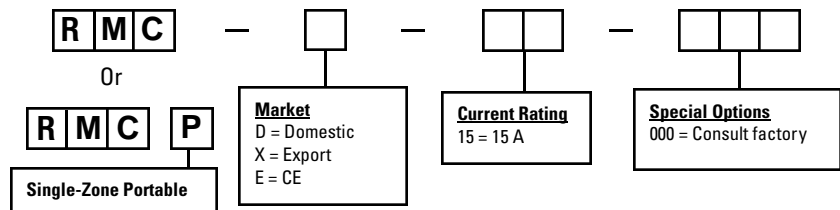
Palm® Pilot with ZonePilot™ software



Series RMC/P Portable Single-Zone Controller



Ordering Information





SERIES RMC TECHNICAL SPECIFICATIONS

PERFORMANCE SPECIFICATIONS

Auto Control Mode	CompuCycle® system
Control Accuracy	±0.1°F (±0.1°C) dependent on the total thermal system
Temperature Range	32 to 999°F (0 to 537°C)
Temperature Stability	±0.5% of full scale over the ambient range of 32 to 131°F (0 to 55°C)
Calibration Accuracy	Better than 0.2% of full scale
Power Response Time	Better than 300 milliseconds
Process Sampling	100 milliseconds (nominal)
°F/°C	Jumper-selectable
Compu-Step® System Control Mode	Variable stepping voltage, phase fired
Compu-Step System Duration	Approximately 5 minutes
Compu-Step System Output Voltage	Steps approximately from 25 V _{RMS} with 240 Vac line output, phase-fired
Compu-Step System Override Temp	200°F (93°C)
Operational Mode Priority	a. TC open, TC reverse, Shutdown and Open heater override CompuStep system b. Manual mode overrides TC open, TC reverse

INPUT SPECIFICATIONS

Thermocouple (T/C) Sensor	Type "J" or Type "K", grounded or ungrounded (switch-selectable)
External T/C Resistance	Maximum 100 ohms for rated accuracy
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	10 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 999°F (537°C)
Common Mode Rejection Ratio	Greater than 100 dB
Power Supply Rejection Ratio	Greater than 70 dB

OUTPUT SPECIFICATIONS

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

CONTROLS AND INDICATORS

Setpoint Control	Two buttons up or down. Resolution: 1°F (1°C)
% Power Control	Two buttons up or down
Mode Control	Push button switch with LED indicator for manual mode
Display	Top: 3-digit filtered LED Bottom: 4-digit filtered LED
Status Indicators	Heat-current output Alarm
Power On-Off	Rocker Switch, UL, CSA, and VDE approved

ELECTRICAL POWER SPECIFICATIONS

Input Voltage	115 to 230 Vac, ± 10%
Frequency	50-60 Hz
DC Power Supplies	Internally generated, regulated and temperature compensated
Module Power Usage	Less than 6 watts, excluding load

SERIES SY

Athena's low-voltage hot runner temperature control systems combine 240 Vac and 24 Vac into one unit and are available in either Series RMB or Series RMC control module configurations. A special safety interlock prevents insertion of a 24 Vac control module into a 240 Vac mainframe. Both controllers share these advanced features:

- Dual digital displays
- Auto-tuning, with adjustable proportional band and rate
- Advanced diagnostics automatically inform the user of fault conditions, including open thermocouple, shorted thermocouple, reversed thermocouple, open heater, and high and low process temperature.
- Compu-Step® provides gradual phase angle-fired voltage during warmup.
- Compu-Cycle® utilizes zero crossover power to improve response time, reduce thermal fatigue, and prolong heater life.
- Bumpless auto/manual transfer
- Wide range of accessories and control modules available to customize system

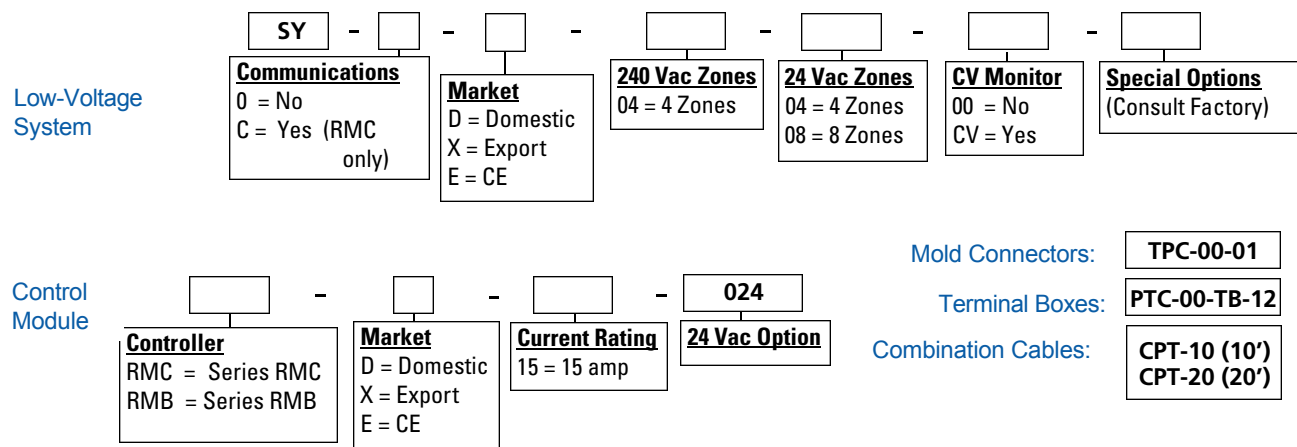


System Configuration

Athena® low-voltage hot runner control systems include the mainframe cabinet with fused circuit breaker/disconnect, stepdown transformer, and floorstand. Controller modules, mold connectors, terminal boxes, and combination cables must be ordered separately (see ordering information below).



Ordering Information





SERIES SY DUAL-VOLTAGE HOT RUNNER SYSTEM

The Athena Series RMB controller features an easy-to-use operator keypad, two LED displays, and three discrete indicators for heat-current, alarm and manual mode.

- Accepts Type J or Type K thermocouple input (jumper selectable)
- Built-in loop break, short, open, and reverse thermocouple protection
- Built-in triac safety protection
- Ground-fault protection
- Preset alarms at 30° F (17°C)
- Jumper-selectable soft-start mode
- Current monitor feature displays average current to load



See page 8 for more information.



See page 10 for more information.

The Athena Series RMC controller offers the same features as the Series RMB PLUS:

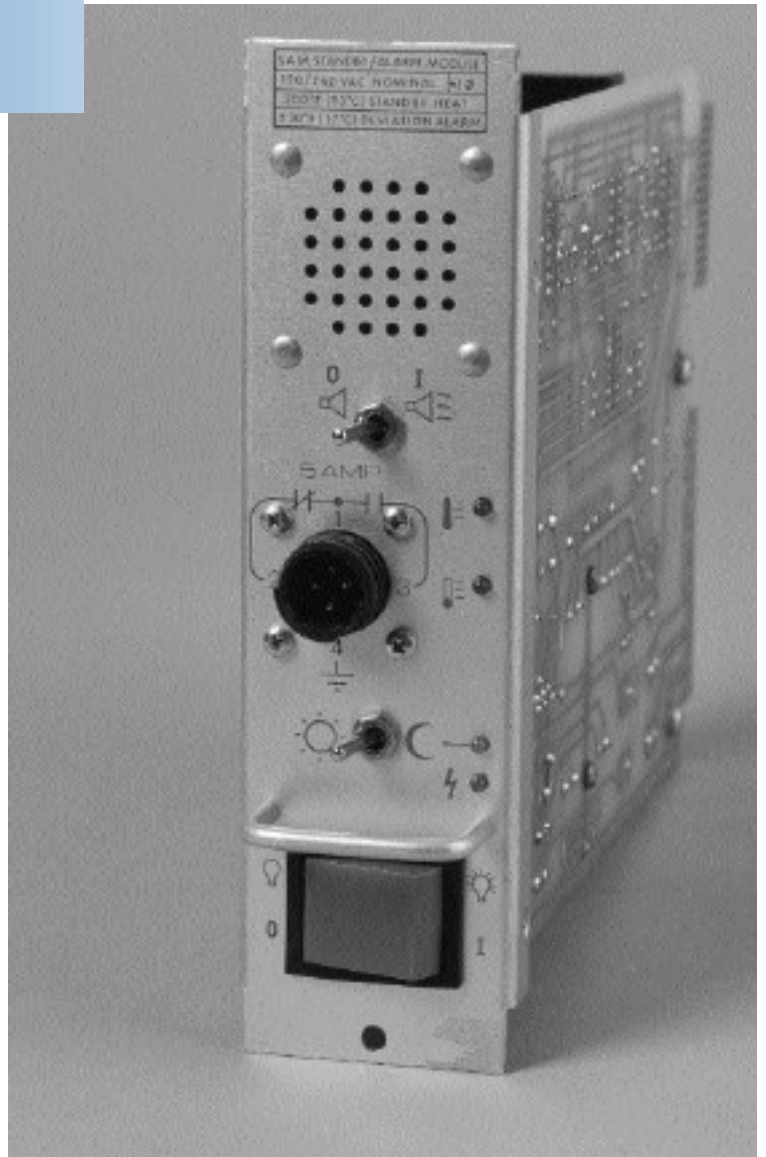
- Built-in current monitoring
- Front-panel boost function
- ALL command
- Remote communications via Modbus or Palm handheld device
- Choice of three default modes for open thermocouple protection
- Boost mode for temporary % of power output increase

SAM SERIES

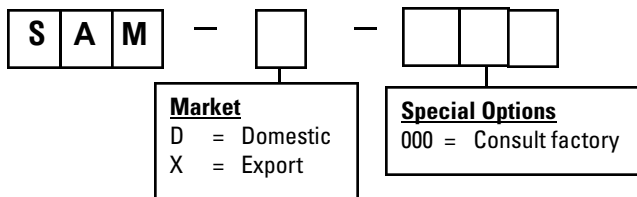
Over/under temperature alarm. Built in standby/night heat. Audio and relay output. For use with IMP only.

SPECIFICATIONS

Standby Temperature	200 deg F (93 deg C)
AC Input Requirements	240 Vac + 10% -20%, 48-63 Hz (standard) 120 Vac (Available)
Alarm Limits	+/- 30° F (17° C) when used with an IMP
Alarm Output (Audible)	Over Temperature: 2 KHz tone at 2 Hz interval Under Temperature: 1 Hz flashing interval
Alarm Output (Visual)	Over Temperature: 2 Hz flashing rate Under Temperature: 1 Hz flashing rate
Output Connector	AMP MIL-style connector (4 Pin) providing Normally Closed and Normally Opened relay contacts. (5 amp maximum)
Communication Capacity	50 zones maximum



Ordering Information



MAINFRAME CONFIGURATIONS

MAINFRAMES FOR 15-AMP MODULES*

The configurations illustrated below provide a wide selection of zone capacities to suit almost any control application. The 5, 8 and 12 zone frames use individual frame sections. The 16 thru 48 zone frames use 2, 3 or 4 frame sections rigidly fastened together into one prewired integral unit which requires only one main AC power input connection. The Current/ Voltage Monitor option will be factory installed and must be ordered at same time as mainframe.

Dimensions*

MFL Mainframe	Height	Depth	Width	MFH Mainframe
1- & 2-zone	9-1/4"	10"	7"	1-zone
3-zone	9-1/4"	12-3/4"	7"	
5-zone	8-7/8"	11-1/2"	16-1/8"	2-zone
8-zone	8-7/8"	11-1/2"	22-1/8"	3-zone
12-zone	8-7/8"	11-1/2"	30-1/4"	5- & 6-zone

*For mainframes over 12 zones, add dimensions of stacked cabinets.



1-Zone



2-Zone



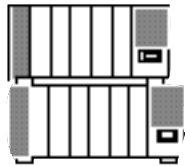
3-Zone



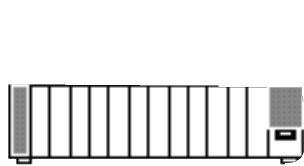
5-Zone



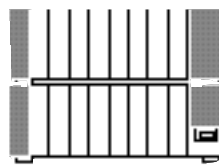
8-Zone



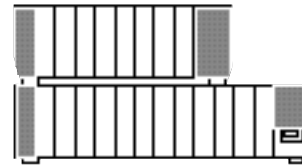
11-Zone



12-Zone



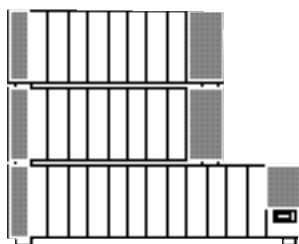
16-Zone



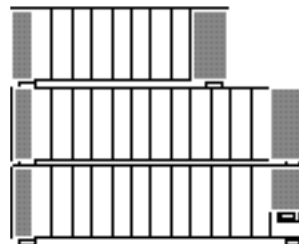
20-Zone



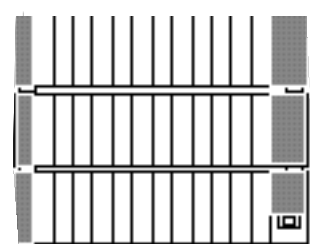
24-Zone



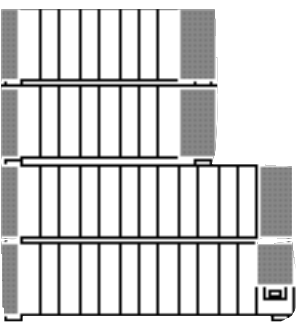
28-Zone



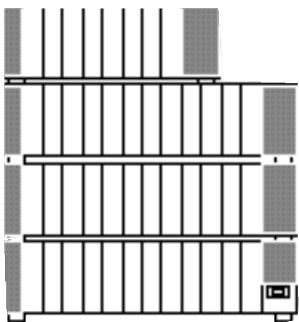
32-Zone



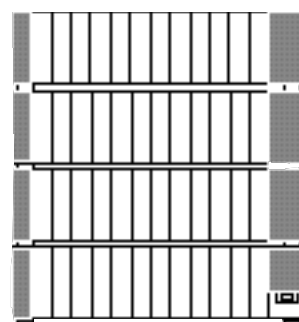
36-Zone



40-Zone



44-Zone



48-Zone

MAINFRAMES FOR 30-AMP MODULES*

The 5 configurations illustrated below provide 1, 2, 3, 5 or 6 zones of 30 amp control for higher wattage heater applications. The Current/Voltage Monitor option will be factory installed and must be ordered at same time as mainframes.



1-Zone



2-Zone



3-Zone



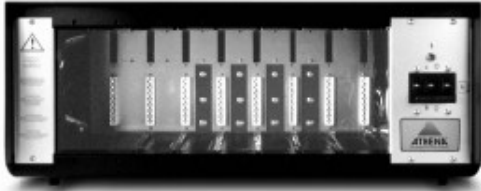
5-Zone



6-Zone

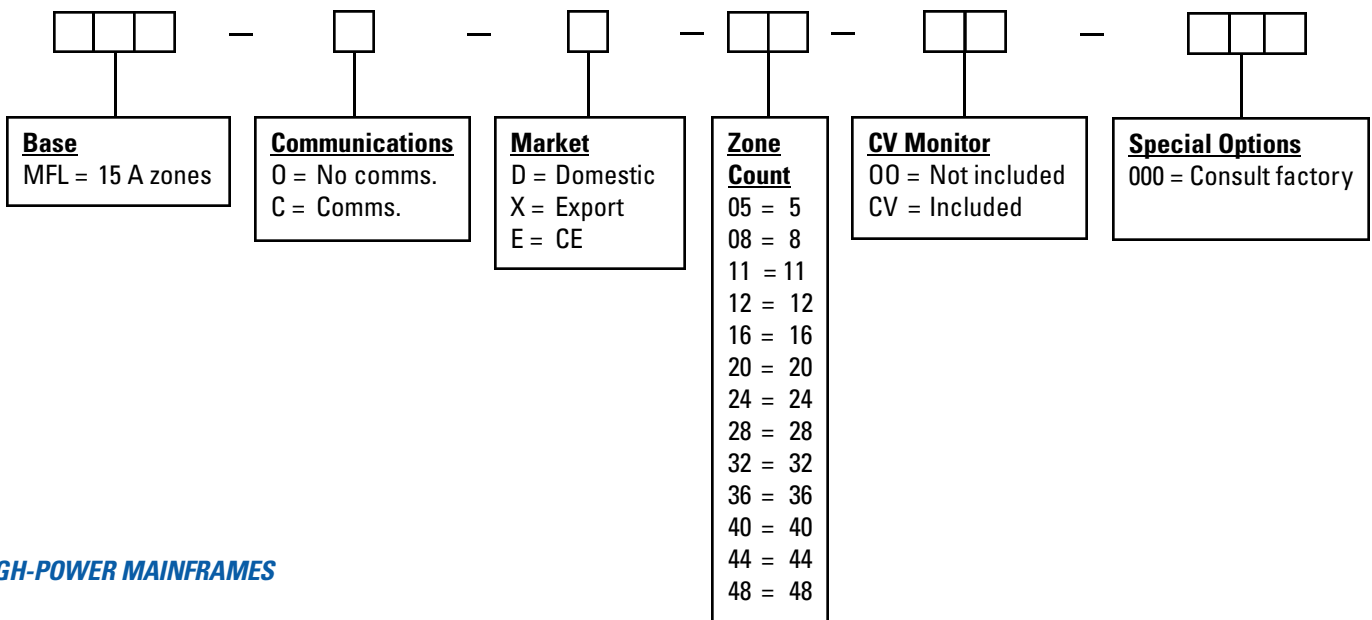
*NOTE: Blank panel(s) should be ordered to provide for heat dissipation and to cover unused zones in frames. Combination frames to accommodate both 15 and 30 amp modules are available on special order.

MAINFRAME ORDERING INFORMATION

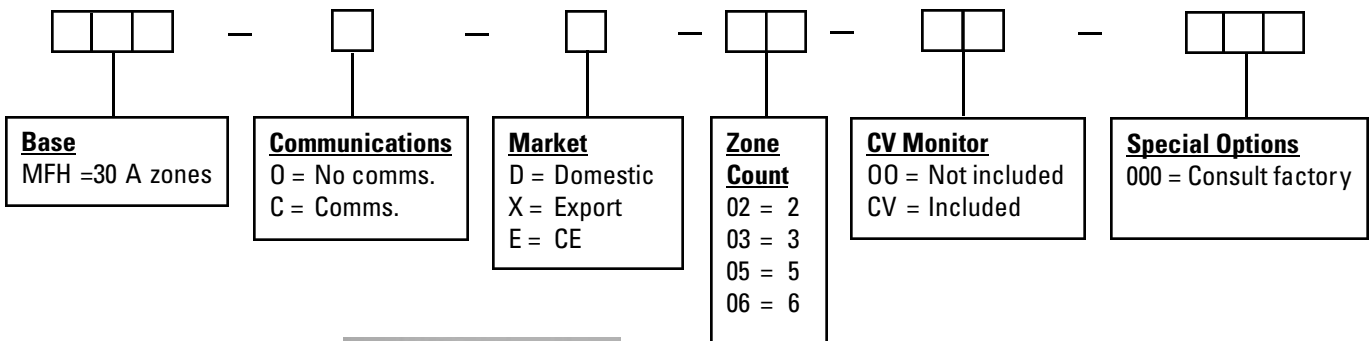


Ordering Information

STANDARD MAINFRAMES



HIGH-POWER MAINFRAMES

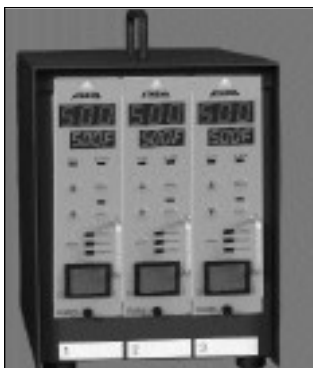


Available in place of the standard breaker/disconnect panel, the CV monitor provides the operator with:

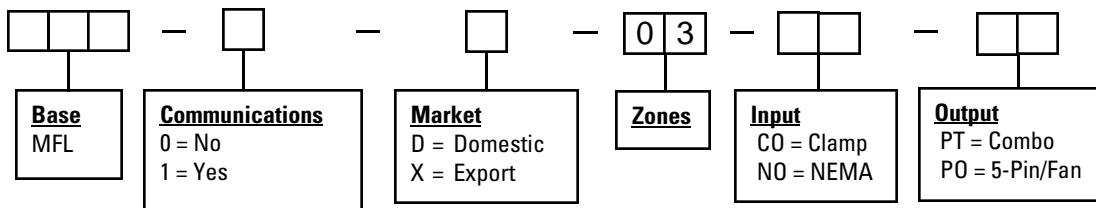
- voltage information from each phase
- the ability to select an individual zone to monitor current



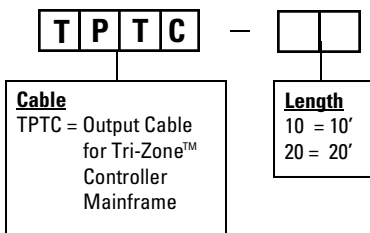
TRI-ZONE™ CONTROLLER MAINFRAME



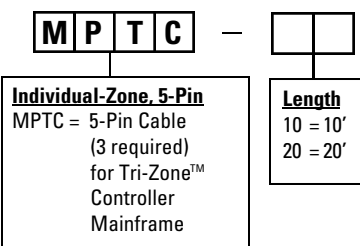
Ordering Information



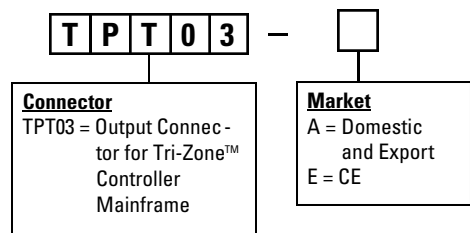
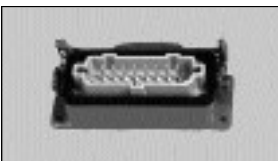
Combo Cable for Tri-Zone™ Controller Mainframe



Individual Zone Cable (3 Required)



Combo Connector for Tri-Zone™ Controller Mainframe



SERIES IMP/P AND RMC/P PORTABLE CONTROLLERS

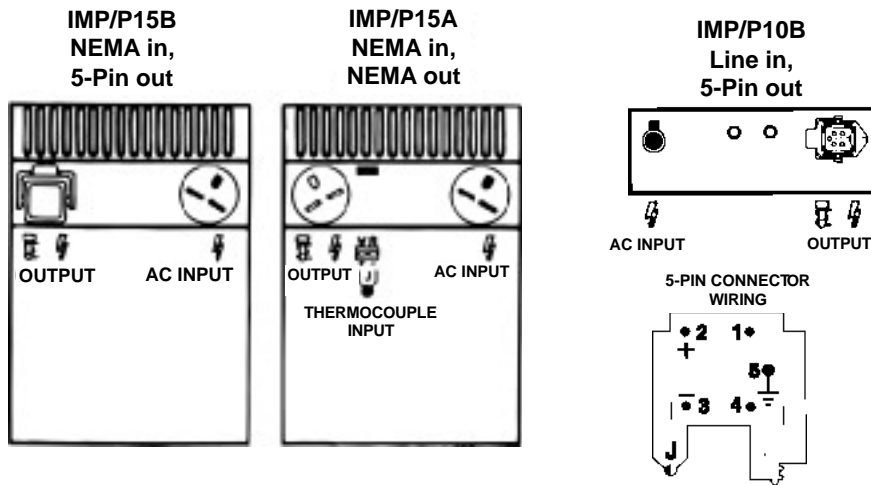
SERIES IMP/P SINGLE-ZONE CONTROLLER

SERIES RMC/P SINGLE-ZONE CONTROLLER

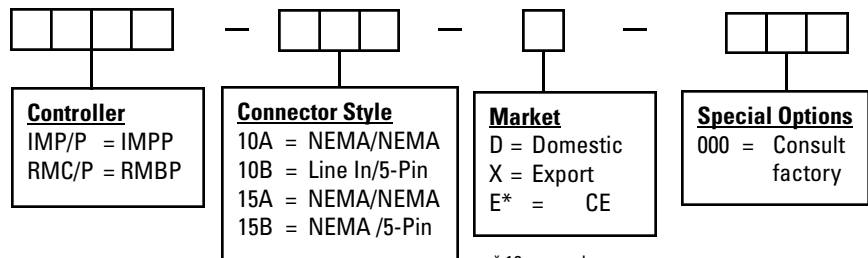


Note: For features and technical specifications of the Series IMP/P, refer to the Series IMP description on page 6.

Note: For features and technical specifications of the Series RMC/P, refer to the Series RMC description on page 10.



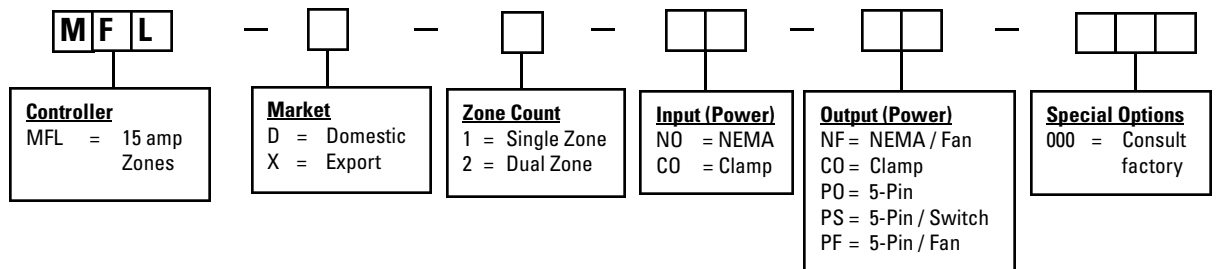
Ordering Information



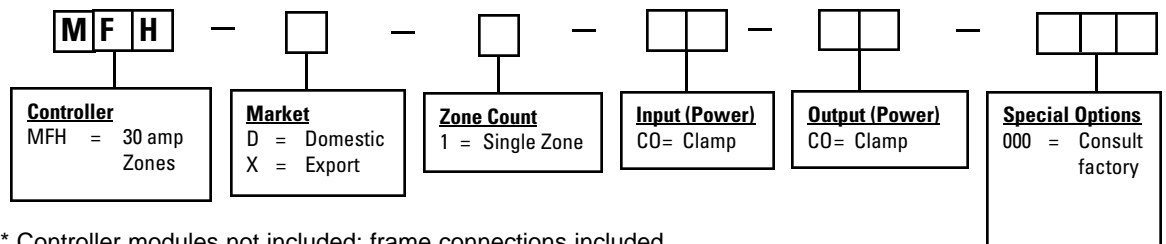
* 10 amp only

Ordering Information

SINGLE / DUAL ZONE MAINFRAMES



HIGH-POWER SINGLE ZONE MAINFRAMES



* Controller modules not included; frame connections included.

HOT RUNNER CONTROLS, SYSTEM COMPONENTS DOMESTIC AND EXPORT

#Zones	CABLES		CONNECTORS		TERMINAL BOXES **		
	Mold Power (C10=10 Ft) (C20=20 Ft)	Thermocouple (C10=10 Ft) (C20=20 Ft)	Mold Power Input*	Thermocouple	Power Input	Thermocouple	Combination

STANDARD MAIN FRAME ("A" SUFFIX = DOMESTIC OR EXPORT)

* Includes Crimp Connectors

**Order Power Input and Thermocouple or Combination

5	1-MPCL05CxxA	1-TC05CxxA	1-PICL05A	1-MTC05A	1-PICL512TBA	1-MTC005TBA	1-PTCL005TBA
8	1-MPCL08CxxA	1-TC08CxxA	1-PICL08A	1-MTC08A	1-PICL512TBA	1-MTC008TBA	1-PTCL008TBA
11/12	1-MPCL12CxxA	1-TC12CxxA	1-PICL12A	1-MTC12A	1-PICL512TBA	1-MTC012TBA	1-PTCL012TBA
16	2-MPCL08CxxA	2-TC08CxxA	2-PICL08A	2-MTC08A	2-PICL512TBA	2-MTC008TBA	1-PTCL016TBA
20	1-MPCL08CxxA	1-TC08CxxA	1-PICL08A	1-MTC08A	2-PICL512TBA	1-MTC008TBA	1-PTCL008TBA
	1-MPCL12CxxA	1-TC12CxxA	1-PICL12A	1-MTC12A		1-MTC012TBA	1-PTCL012TBA
24	2-MPCL12CxxA	2-TC12CxxA	2-PICL12A	2-MTC12A	2-PICL512TBA	2-MTC012TBA	1-PTCL024TBA
28	2-MPCL08CxxA	2-TC08CxxA	2-PICL08A	2-MTC08A	3-PICL512TBA	2-MTC008TBA	1-PTCL016TBA
	1-MPCL12CxxA	1-TC12CxxA	1-PICL12A	1-MTC12A		1-MTC012TBA	1-PTCL012TBA
32	1-MPCL08CxxA	1-TC08CxxA	1-PICL08A	1-MTC08A	3-PICL512TBA	1-MTC008TBA	1-PTCL008TBA
	2-MPCL12CxxA	2-TC12CxxA	2-PICL12A	2-MTC12A		2-MTC012TBA	1-PTCL024TBA
36	3-MPCL12CxxA	3-TC12CxxA	3-PICL12A	3-MTC12A	3-PICL512TBA	3-MTC012TBA	3-PTCL012TBA
40	2-MPCL08CxxA	2-TC08CxxA	2-PICL08A	2-MTC08A	4-PICL512TBA	2-MTC008TBA	1-PTCL016TBA
	2-MPCL12CxxA	2-TC12CxxA	2-PICL12A	2-MTC12A		2-MTC012TBA	1-PTCL024TBA
44	1-MPCL08CxxA	1-TC08CxxA	1-PICL08A	1-MTC08A	4-PICL512TBA	1-MTC008TBA	1-PTCL008TBA
	3-MPCL12CxxA	3-TC12CxxA	3-PICL12A	3-MTC12A		3-MTC012TBA	3-PTCL012TBA
48	4-MPCL12CxxA	4-TC12CxxA	4-PICL12A	4-MTC12A	4-PICL512TBA	4-MTC012TBA	2-PTCL024TBA

HIGH POWER MAINFRAME ("A" SUFFIX = DOMESTIC OR EXPORT)

2	1-MPCH23CxxA	1-TC05CxxA	1-PICH23A	1-MTC05A	1-PICH023TBA	1-MTC005TBA	1-PTCH023TBA
3	1-MPCH23CxxA	1-TC05CxxA	1-PICH23A	1-MTC05A	1-PICH023TBA	1-MTC005TBA	1-PTCH023TBA
5	1-MPCH05CxxA	1-TC05CxxA	1-PICH05A	1-MTC05A	1-PICH005TBA	1-MTC005TBA	1-PTCH005TBA
6	1-MPCH06CxxA	1-TC08CxxA	1-PICH06A	1-MTC08A	1-PICH006TBA	1-MTC008TBA	1-PTCH006TBA



HOT RUNNER CONTROLS, SYSTEM COMPONENTS CE- COMPLIANT

#Zones	CABLES		CONNECTORS		TERMINAL BOXES **		
	Mold Power (C10=10 Ft) (C20=20 Ft)	Thermocouple (C10=10 Ft) (C20=20 Ft)	Mold Power Input*	Thermocouple	Power Input	Thermocouple	Combination

STANDARD MAINFRAME ("E" SUFFIX = CE-COMPLIANT)

* Includes Crimp Connectors

**Order Power Input and Thermocouple or Combination

5	1-MPCL05CxxE	1-TC05CxxE	1-PICL05E	1-MTC05E	1-PICL005TBE	1-MTC005TBE	1-PTCL005TBE
8	1-MPCL08CxxE	1-TC08CxxE	1-PICL08E	1-MTC08E	1-PICL008TBE	1-MTC008TBE	1-PTCL008TBE
11/12	1-MPCL12CxxE	1-TC12CxxE	1-PICL12E	1-MTC12E	1-PICL012TBE	1-MTC012TBE	1-PTCL012TBE
16	2-MPCL08CxxE	2-TC08CxxE	2-PICL08E	2-MTC08E	2-PICL008TBE	2-MTC008TBE	1-PTCL016TBE
20	1-MPCL08CxxE	1-TC08CxxE	1-PICL08E	1-MTC08E	2-PICL008TBE	1-MTC008TBE	1-PTCL008TBE
	1-MPCL12CxxE	1-TC12CxxE	1-PICL12E	1-MTC12E		1-MTC012TBE	1-PTCL012TBE
24	2-MPCL12CxxE	2-TC12CxxE	2-PICL12E	2-MTC12E	2-PICL012TBE	2-MTC012TBE	1-PTCL024TBE
28	2-MPCL08CxxE	2-TC08CxxE	2-PICL08E	2-MTC08E	3-PICL008TBE	2-MTC008TBE	1-PTCL016TBE
	1-MPCL12CxxE	1-TC12CxxE	1-PICL12E	1-MTC12E		1-MTC012TBE	1-PTCL012TBE
32	1-MPCL08CxxE	1-TC08CxxE	1-PICL08E	1-MTC08E	3-PICL008TBE	1-MTC008TBE	1-PTCL008TBE
	2-MPCL12CxxE	2-TC12CxxE	2-PICL12E	2-MTC12E		2-MTC012TBE	1-PTCL024TBE
36	3-MPCL12CxxE	3-TC12CxxE	3-PICL12E	3-MTC12E	3-PICL012TBE	3-MTC012TBE	3-PTCL012TBE
40	2-MPCL08CxxE	2-TC08CxxE	2-PICL08E	2-MTC08E	4-PICL008TBE	2-MTC008TBE	1-PTCL016TBE
	2-MPCL12CxxE	2-TC12CxxE	2-PICL12E	2-MTC12E		2-MTC012TBE	1-PTCL024TBE
44	1-MPCL08CxxE	1-TC08CxxE	1-PICL08E	1-MTC08E	4-PICL008TBE	1-MTC008TBE	1-PTCL008TBE
	3-MPCL12CxxE	3-TC12CxxE	3-PICL12E	3-MTC12E		3-MTC012TBE	3-PTCL012TBE
48	4-MPCL12CxxE	4-TC12CxxE	4-PICL12E	4-MTC12E	4-PICL012TBE	4-MTC012TBE	2-PTCL024TBE

HIGH POWER MAINFRAME ("E" SUFFIX = CE-COMPLIANT)

2	1-MPCH23CxxE	1-TC05CxxE	1-PICH23E	1-MTC05E	1-PICH023TBE	1-MTC005TBE	1-PTCH023TBE
3	1-MPCH23CxxE	1-TC05CxxE	1-PICH23E	1-MTC05E	1-PICH023TBE	1-MTC005TBE	1-PTCH023TBE
5	1-MPCH05CxxE	1-TC05CxxE	1-PICH05E	1-MTC05E	1-PICH005TBE	1-MTC005TBE	1-PTCH005TBE
6	1-MPCH06CxxE	1-TC08CxxE	1-PICH06E	1-MTC08E	1-PICH006TBE	1-MTC008TBE	1-PTCH006TBE

POWER AND THERMOCOUPLE CABLE ORDERING INFORMATION

Mold Thermocouple Cable -- MFL and MFH Mainframes



□ □	-	□ □	-	□ □ □	-	□	-	□ □ □
Cable TC = Mold thermocouple cable		# Zones 05 = 5 Zones 08 = 8 Zones 12 = 12 Zones		Length* C10 = 10' C20 = 20'		Market A = Domestic and Export E = CE		Special Options 000 = Consult factory

Mold Power Cable (15 amp) - Used with MFL Mainframe



□ □ □ □	-	□ □	-	□ □ □	-	□	-	□ □ □
Cable MPCL = Mold power cable		# Zones 05 = 5 Zones 08 = 8 Zones 12 = 12 Zones		Length* C10 = 10' C20 = 20'		Market A = Domestic and Export E = CE		Special Options 000 = Consult factory

High Power Mold Power Cable (30 amp) - Used with MFH Mainframe



□ □ □ □	-	□ □	-	□ □ □	-	□	-	□ □ □
Cable MPCH = High power mold power cable		# Zones 23 = 2 or 3 Zones 05 = 5 Zones 06 = 6 Zones		Length* C10 = 10' C20 = 20'		Market A = Domestic and Export E = CE		Special Options 000 = Consult factory

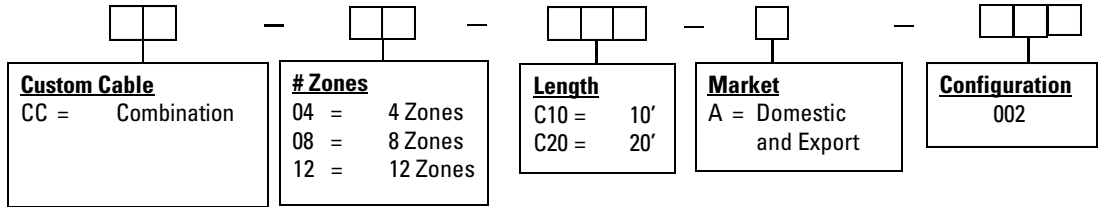
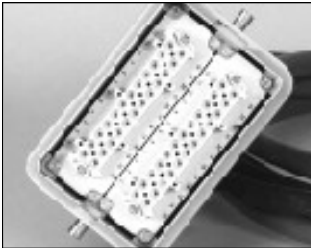
*Consult factory for special lengths.



CUSTOM AND COMBINATION CABLES

Custom Cables for Incoe® and Fast Heat® Systems

For Incoe® Systems

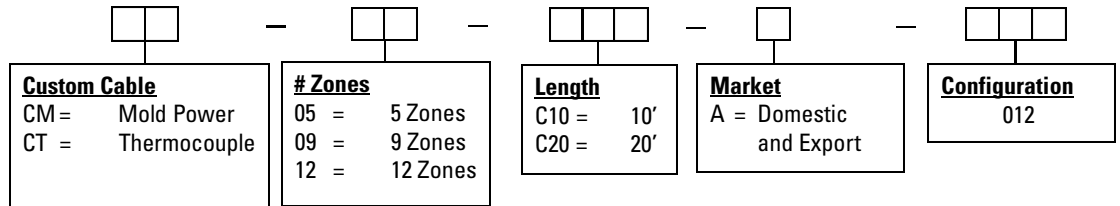


Note: Athena connectors are on mainframe side.
On mold side, cable connects to the following Incoe connector part number:
#1614 (4-zone system)
#3214 (8-zone system)
#4814 (12-zone system)

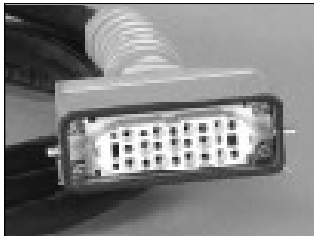
For Fast Heat® Systems



CM Mold Power Cable

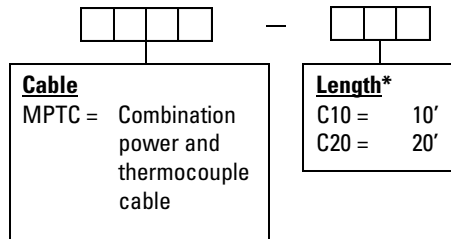


Note: Connects to Fast Heat connectors on mold.

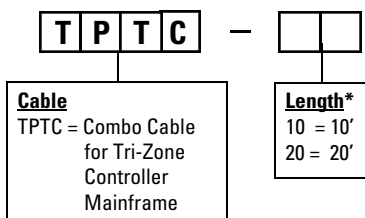


CT Thermocouple Mold Power Cable

Combination Power and Thermocouple Cable (One zone per cable)

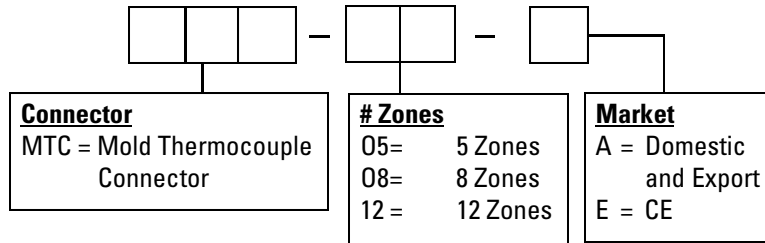


Combo Output Cable for Tri-Zone™ Controller Mainframe

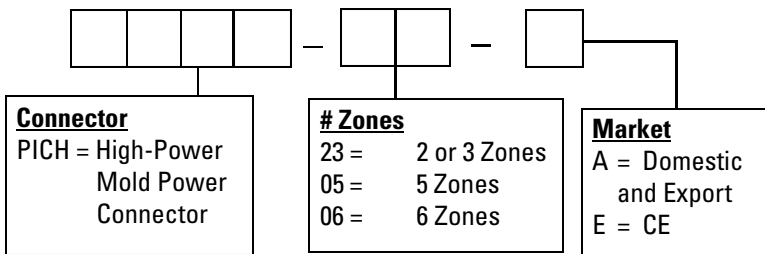
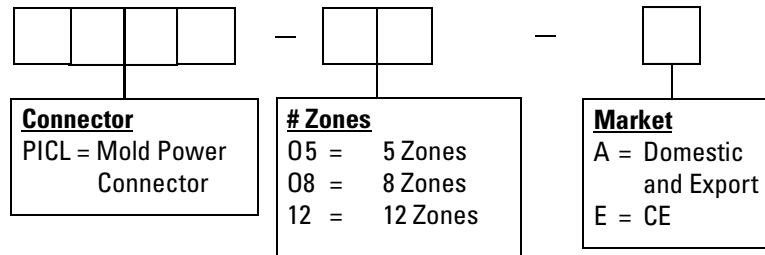


THERMOCOUPLE AND MOLD POWER CONNECTORS

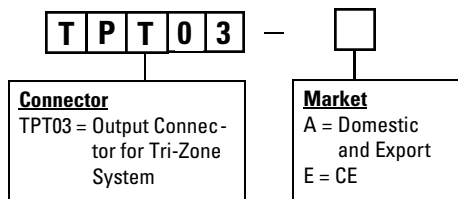
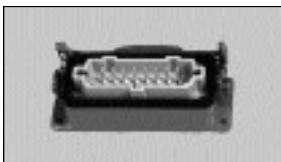
THERMOCOUPLE CONNECTORS



MOLD POWER/INPUT CONNECTORS



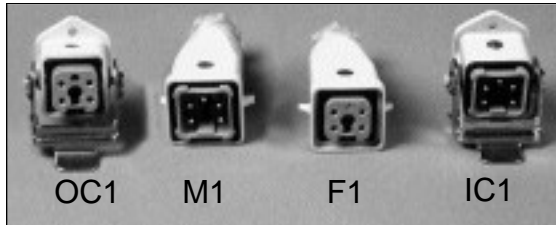
COMBO CONNECTORS FOR TRI-ZONE™ SYSTEM





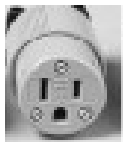
CONNECTORS AND CABLE FOR PORTABLE SYSTEMS

COMBINATION POWER AND THERMOCOUPLE CONNECTORS FOR SINGLE-, DUAL-, AND TRI-ZONE (ONE PER ZONE)

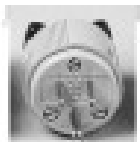


C	K	P	T	—		
Individual-Zone Combo Connectors CKPT = 5-Pin Combo Mold Power/ Thermocouple Connectors for Portable Main- frames				Type OC1 = Frame M1 = Cable, Frame-End F1 = Cable, Mold-End IC1 = Mold		

OTHER CONNECTORS FOR PORTABLE SYSTEMS



215K005U01
(AC1512F)
Cord connector,
female
15 A, 125 V
Power out



215K006U01
(AC1512M)
Cord connector,
male
15 A, 125 V
Power in



215K004U01
(AC1524F)
Cord connector,
female
15 A, 250 V
Power in



215K003U01
(AC1524M)
Cord connector,
male
15 A, 250 V
Power in



215K002U01
(AC2024F)
Connector chassis,
female
20 A, 250 V
Power out



215K001U01
(AC2024M)
Connector chassis,
male
20 A, 250 V
Power in

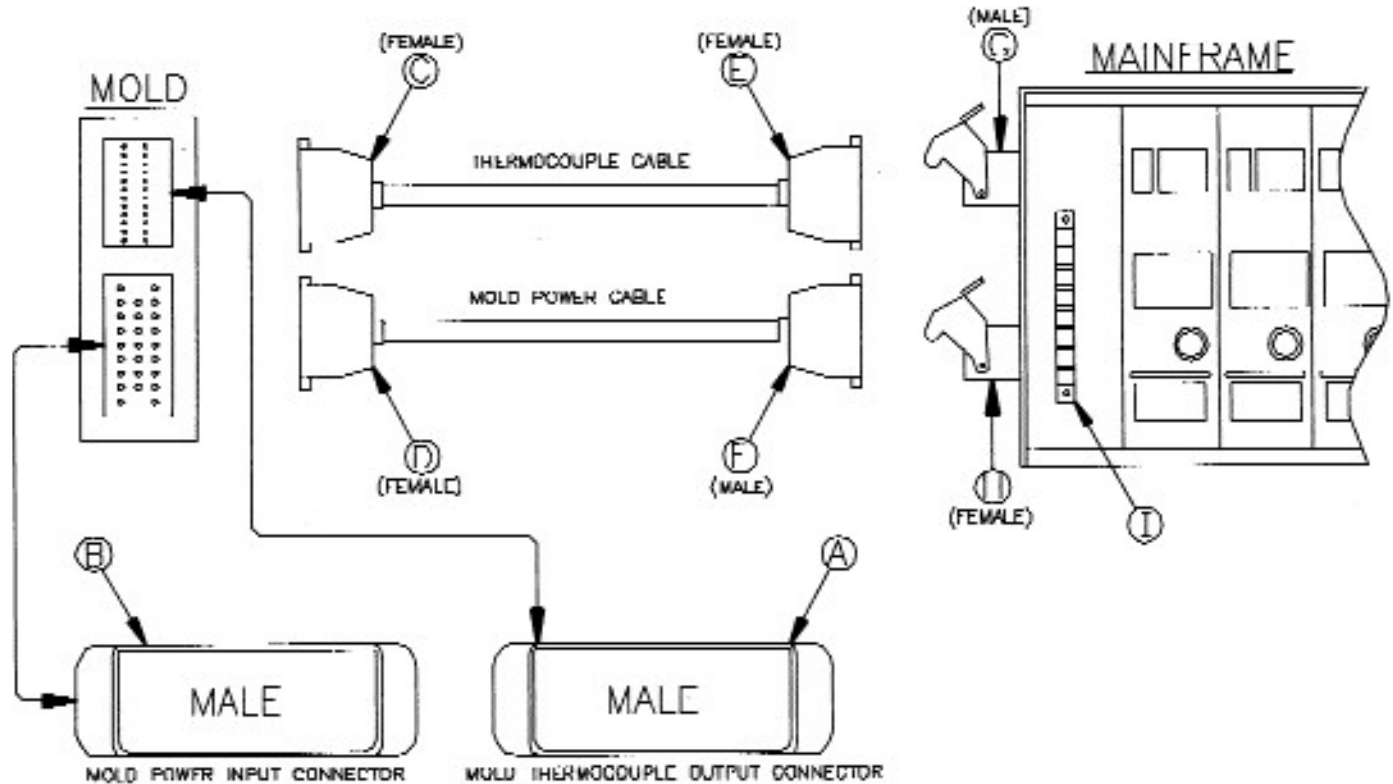


TCS1
TC Socket,
mold side



215P001U01
(M2MJ)
TC mini-plug

MAINFRAME CONNECTOR DIAGRAM



MOLD CONNECTORS			
REF	DOM/EXP	CE	DESCRIPTION
A	MTC05A	MTC05E	Mold Thermocouple Output Connector 5-Zone, and all 30 Amps
	MTC08A	MTC08E	Mold Thermocouple Output Connector 8-Zone
	MTC12A	MTC12E	Mold Thermocouple Output Connector 12-Zone
B	PICL05A	PICL05F	Mold Power Input Connector 5-Zone
	PICL08A	PICL08F	Mold Power Input Connector 8-Zone
	PICL12A	PICL12F	Mold Power Input Connector 12-Zone
	PICH23A	PICH23F	Mold-High Power Input Connector 2-3 Zone, 30 Amps
	PICH05A	PICH05F	Mold-High Power Input Connector 5-Zone (30 Amps)
	PICH08A	PICH08F	Mold-High Power Input Connector 8-Zone (30 Amps)
CABLE CONNECTORS			
REF	DOM/EXP	CE	DESCRIPTION
C	ACKTF15	ECKTF15	Mold End Kit/Thermocouple Cable 5-Zone (10, 15 or 30 Amps)
	ACKTF18	ECKTF18	Mold End Kit/Thermocouple Cable 8-Zone (10, 15 or 30 Amps)
	ACKTF112	ECKTF112	Mold End Kit/Thermocouple Cable 12-Zone (10, 15 or 30 Amps)
D	ACKPF112B	ECKPF112B	Mold End Kit for all 10 or 15 Amp Power Cables
	ACKPF13C	ECKPF13C	Mold End Kit for 2 or 3 Zone, 30 Amp Power Cables
	ACKPF15C	ECKPF15C	Mold End Kit for 5-Zone, 30 Amp Power Cables
E	ACKTF112A	ECKTF112A	Frame End Kit for all Thermocouple Cables (10, 15 or 30 Amps)
F	ACKPM112B	ECKPM112B	Frame End Kit for all 10 or 15 Amp Power Cables
	ACKPM13C	ECKPM13C	Frame End Kit for 2 or 3 Zone, 30 Amp Power Cable
	ACKPM15C	ECKPM15C	Frame End Kit for 5-Zone, 30 Amp Power Cable
MAINFRAME CONNECTORS			
REF	DOM/EXP	CE	DESCRIPTION
G	ACKTM212A	ECKTM212A	Thermocouple Input Kit for all Mainframes (10, 15 or 30 Amps)
H	ACKPF212B	ECKPF212B	Power Output Kit for all 10 or 15 Amp Mainframes
	ACKPF23C	ECKPF23C	Power Output Kit for 2 or 3 Zone, 30 Amp Mainframes
I	ACKPF25C	ECKPF25C	Power Output Kit for 5-Zone, 30 Amp Mainframes
	215N003U01	215N004U01	PC Board Edge Connector for all Mainframes and Modules
	614A011U01	614A011U01	PC Board Edge Connector for all Mainframes and Modules w/Pins



TERMINAL MOUNTING BOXES - ORDERING INFORMATION



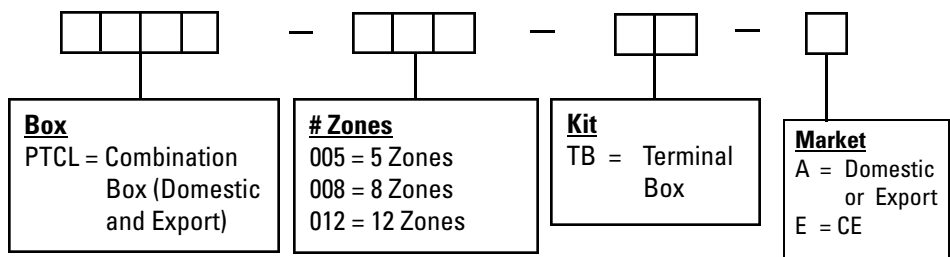
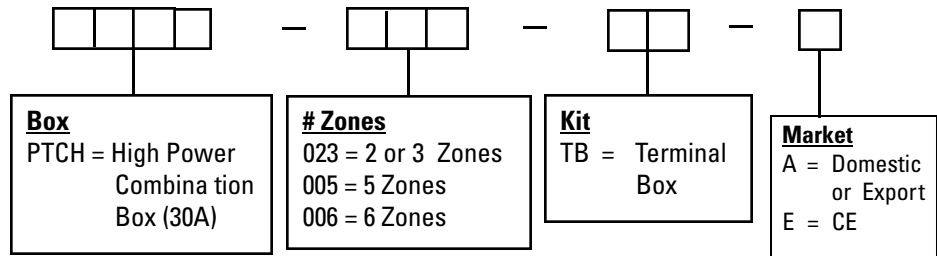
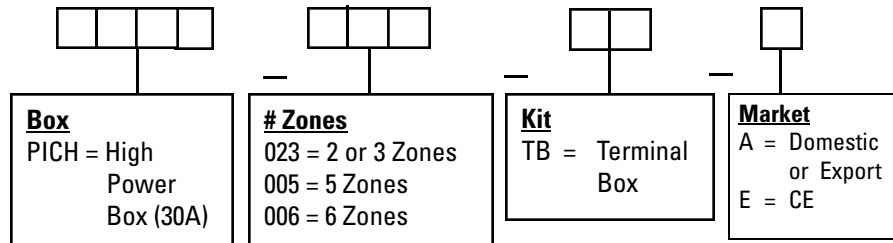
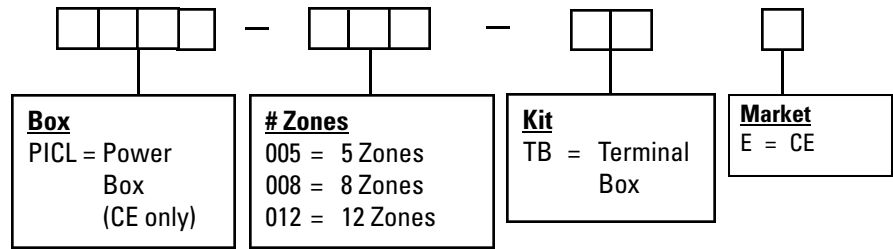
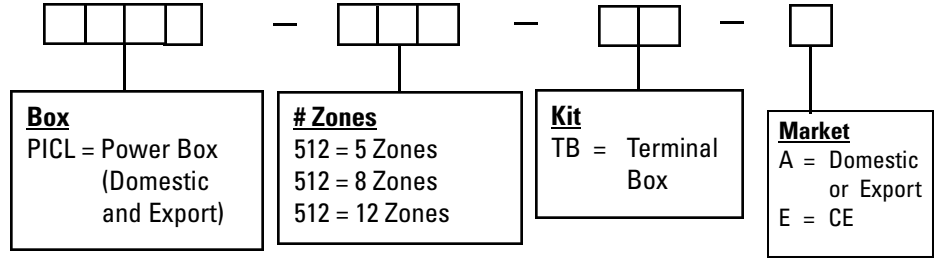
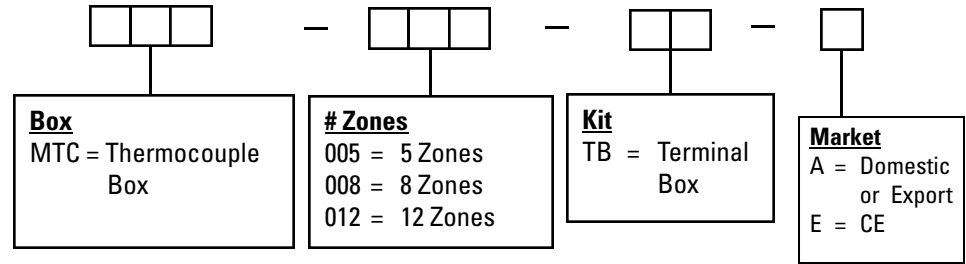
MTC Terminal Mounting Boxes for Thermocouple Connectors



PICL and PICH Terminal Mounting Boxes for Mold Power Input Connectors (15 amps)



PTCH and PTCL Combination Terminal Mounting Boxes (30 amps)



BOXES FOR PORTABLE SYSTEMS

Model No.	Used With
PTCL-001-TB-A	PIM/PAM and MFL mainframes with one 5-pin connector
PTCL-002-TB-A	MFL mainframes with two 5-pin connectors
PTCH-001-TB-A	MFH mainframes with one 30-amp NEMA plug and one thermocouple plug

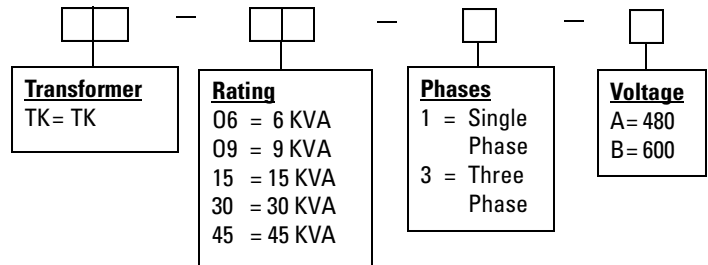
HOT RUNNER SYSTEM ACCESSORIES

TRANSFORMER KITS

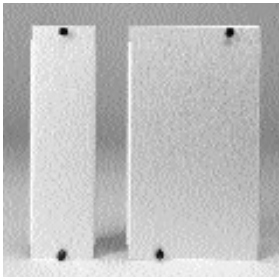


Transformer kits are fully wired and include enclosed transformer (480 Vac 3 ϕ in, 240 Vac 3 ϕ out) with adjustable voltage taps, power cable to main frame, disconnect switch, extra fuses, and floor stand with all hardware. Other transformers are available for your particular power requirements.

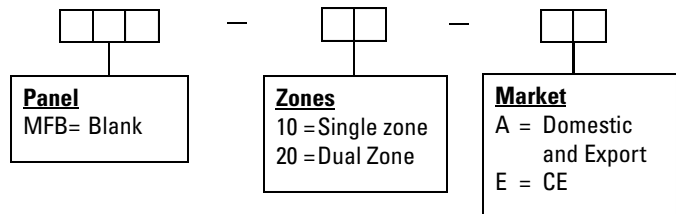
Ordering Information



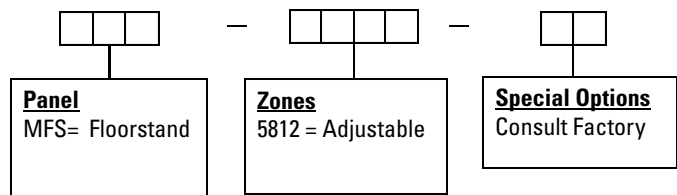
CLOSURE (BLANKING) PANELS



Must be used to cover unused zones in main frames for correct air circulation (cooling). MFB10 for use on single unused zones. MFB20 for use on two unused zones. Supplied with push-pull panel fasteners.



UNIVERSAL FLOOR STAND



MODULE REPLACEMENT FUSES



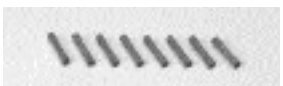
Catalog No.	Description	Amps	Quantity
ABC15	15 amp, 240 V	15	5
A25X30	30 amp, 240 V	30	1



INSULATED CRIMP CONNECTORS



For easy splicing of mold power input connector leads to heater leads.



Catalog Number	Amps	Quantity
HWCC-1	15	36
HWCC-2	30	20

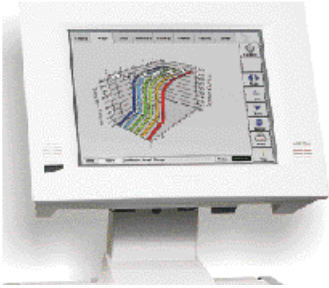
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ALSO FROM ATHENA CONTROLS...

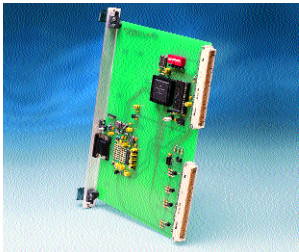
Series K Hot Runner Controls



Universal Digital Controllers



Custom Control Solutions



Analog Controllers



Power Controls



Power Handlers



Vintage Controllers



Tudor™ Temperature Sensors

