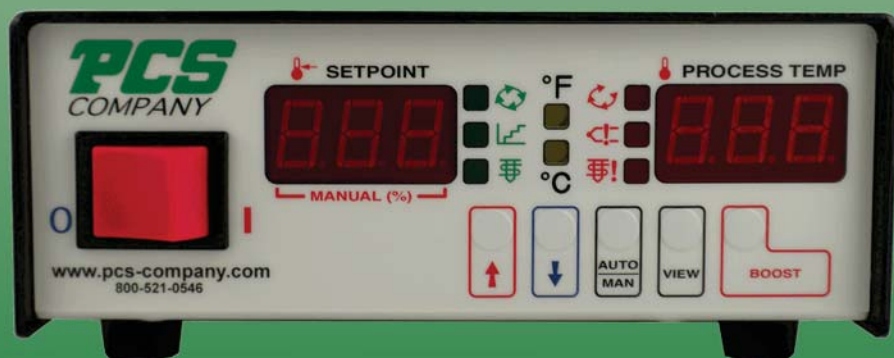


# Temperature Control Systems



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# Modular Temperature Controllers



## Product Features

PCS Modular Controllers incorporate many user-friendly features.

- Compatible with all industry standard "G" Series® style temperature control modules and mainframe systems
- Automatic (closed loop) & Manual (open loop) control modes
- Current (Amps) monitoring
- Boost power output function in both automatic and manual control modes
- Fully automatic, adaptive tuning of PID variables
- User selectable automatic Thermocouple break hold function (transfers power setting to manual mode if T/C is lost)
- Full diagnostics (fault recognition) with English fault code display
- Ground fault protection
- User selectable delay for shorted T/C diagnostic to prevent premature alarm on slow or heavy loads
- J type T/C standard, user selectable K type option
- Alarm output communications compatibility
- Automatic slow start temperature ramp for wet heater dry out
- Operating voltage can easily be changed to 120v via printed circuit board jumpers
- Anti-arc (high voltage) protection circuit to prevent electrical damage if the controller is accidentally installed or removed from the mainframe with power applied. Circuit may be disabled.
- CE, WEEE, and RoHS Compliant
- 2 year product warranty (excluding fuses and triacs)
- Proudly made in the U.S.A.



1 Zone

1 Zone



2 Zone



5 Zone



8 Zone



12 Zone

# VC-M 15 Amp Module

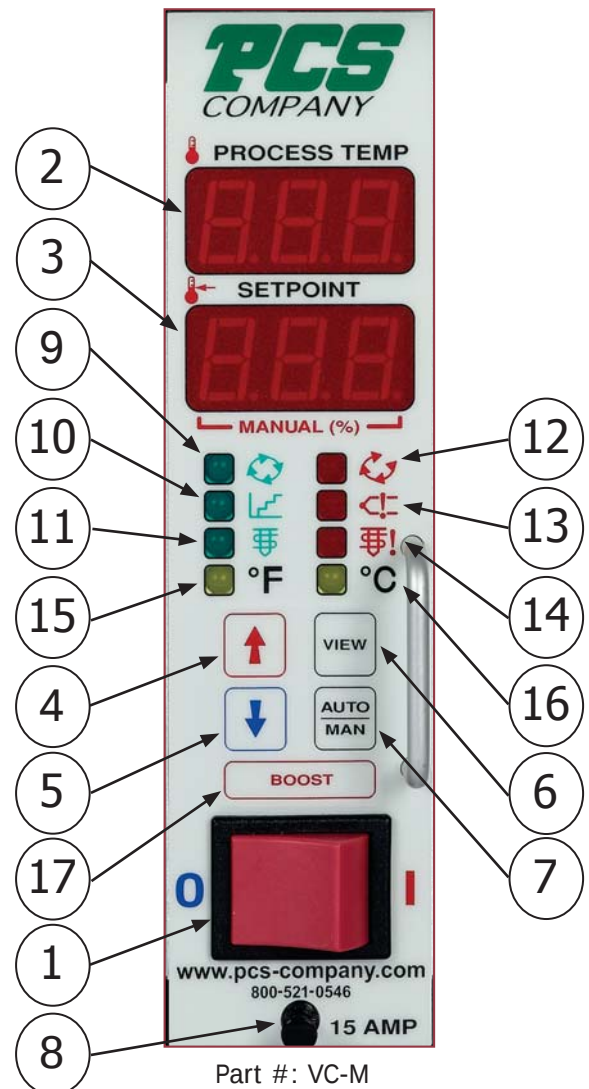


## CONTROLS

1. Power Switch(ON/OFF)
2. Process Temperature Display  
Also Displays/Diagnostics/Fault mnemonics
- 3a. Setpoint Temperature Display (Shown at Right)  
In Automatic (Closed Loop) Control Mode
- 3b. Load Power (%) Output Display  
In manual (Open Loop) Control Mode
- 3c. Amps(Load Current) Display  
in Amps Monitor/Display Mode
4. Increment Key  
Increment Setpoint in Automatic Mode  
Increment Power Output in Manual Mode
5. Decrement Key  
Decrement Setpoint in Automatic Mode  
Decrement Power Output in Manual Mode
6. View Key  
In automatic Mode Displays % Power or Amps  
In Manual Mode Displays Amps
7. Automatic/Manual Control Mode Select Key
8. Plastic Retention/ Locking Device

## INDICATORS

9. Automatic (Closed Loop) Control Mode Indicator
10. Start-Up Power Ramp Indicator
11. Load Power Indicator
12. Manual (Open Loop) Control Mode Indicator
13. Thermocouple Fault Indicator
14. Output (Power) Fault Indicator
15. Fahrenheit Temperature Scale Indicator
16. Celsius Temperture Scale Indicator
17. User Executed Boost Power Output Mode:  
+25% to Current % Power - OR- 100% Power  
User Selected via PC Board DIP Switch



Part #: VC-M

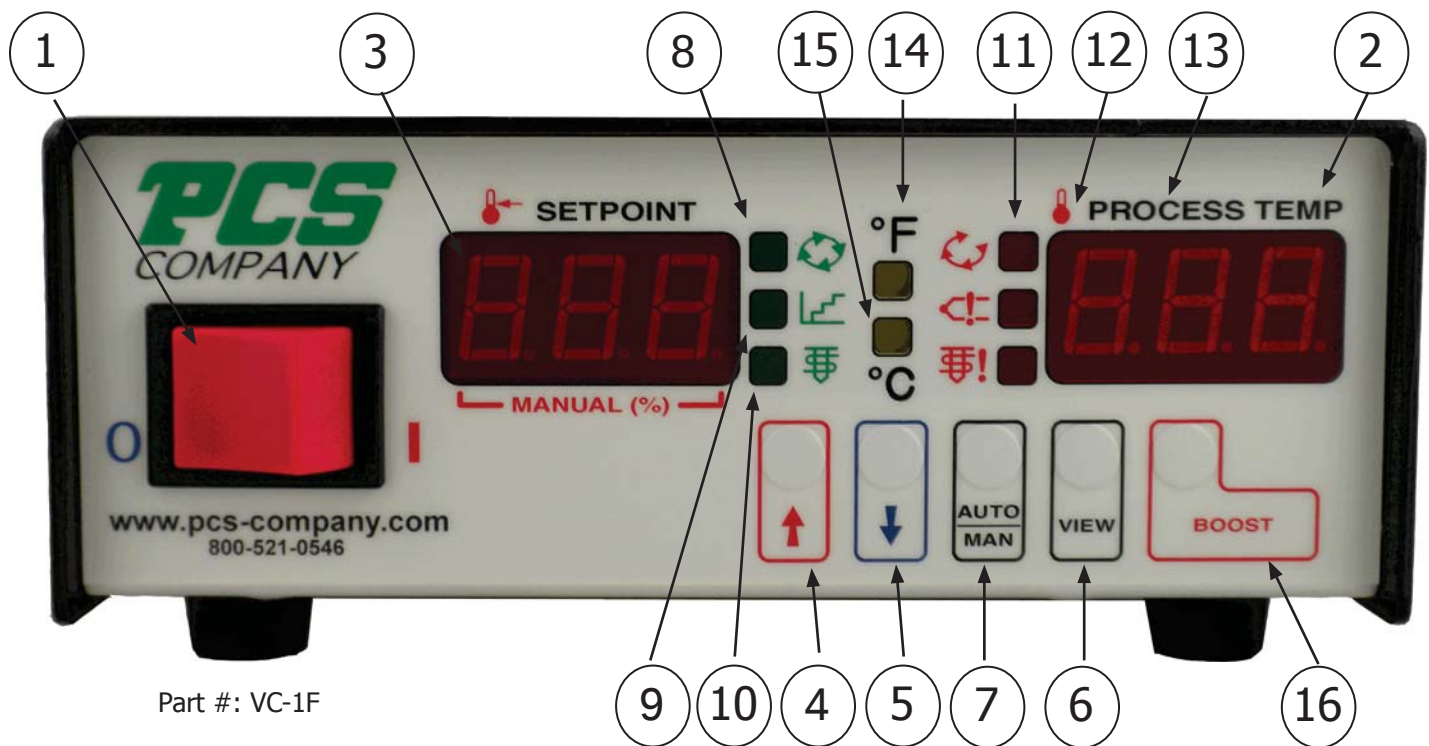
## Diagnostics

- Over Temperature Indication (+30°F/+17°C) HI  
LED Display with Accessory Alarm Output
- Under Temperature Indication (-30°F/-17°C) LO  
LED Display with Accessory Alarm Output
- Open T/C Indication..... oPE   
LED Display with Accessory Alarm Output
- Reverse T/C Indications..... bAC   
LED Display with Accessory Alarm Output

## Diagnostics

- Shorted T/C Indication..... Sho   
LED Display with Accessory Alarm Output
- Shorted Output Indication..... ShO   
LED Display with Accessory Alarm Output
- Open Output Indication..... oPO   
LED Display with Accessory Alarm Output
- Ground Fault Indication..... FAL   
LED Display with Accessory Alarm Output

# Single Zone Hot Runner Temperature Controller



## CONTROLS AND INDICATORS

- |                                                                                                                       |                                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| 1. Power Switch Both sides of the AC line fuse protected                                                              | 9. Start-Up Power Ramp Indication(Wet heater bake-out)                                                                            |
| 2. Process Temperature Display (Also Displays Diagnostics)                                                            | 10. Load Power Indication                                                                                                         |
| 3. <b>Setpoint Temperature Display (Auto)</b><br>(%) Percent of Power Display (Manual)<br>Load Current (Amps) Display | 11. Manual (Open Loop) Control Mode Indication                                                                                    |
| 4. Increment Control (Setpoint and % Power)                                                                           | 12. Thermocouple Fault Indication (Also LED code below)                                                                           |
| 5. Decrement Key (Setpoint and % Power)                                                                               | 13. Output Fault Indication (Also LED code below)                                                                                 |
| 6. View Control (Display Setpoint, % Power or Amps)                                                                   | 14. Fahrenheit Temperature Mode Indication                                                                                        |
| 7. Automatic / Manual Control Mode Select                                                                             | 15. Celsius Temperature Mode Indication                                                                                           |
| 8. Automatic (Closed Loop) Control Mode Indication                                                                    | 16. <b>User Executed Boost Power Output Mode:</b><br>+25% to Current Power-OR-100% Power<br>User Selected via PC Board DIP Switch |

## Diagnostics

- Over Temperature Indication (+30°F/+17°C) HI  
LED Display with Accessory Alarm Output
- Under Temperature Indication (-30°F/-17°C) LO  
LED Display with Accessory Alarm Output
- Open T/C Indication..... oPE   
LED Display with Accessory Alarm Output
- Reverse T/C Indications..... bAC   
LED Display with Accessory Alarm Output

## Diagnostics

- Shorted T/C Indication..... Sho   
LED Display with Accessory Alarm Output
- Shorted Output Indication..... ShO   
LED Display with Accessory Alarm Output
- Open Output Indication..... oPO   
LED Display with Accessory Alarm Output
- Ground Fault Indication..... FAL   
LED Display with Accessory Alarm Output

# Modular Temperature Controller Guide



VC-1F



VC-1ZF



VC-2F

This guide will assist in the selection of the correct mainframes and accessories for your next application. 1-48 zones available.

| Zone | Mainframe | Combination Thermocouple Power Cable | Qty. Req. | Combination Thermocouple Power Connector | Qty. Req. |
|------|-----------|--------------------------------------|-----------|------------------------------------------|-----------|
| 1    | VC-1F     | VC-MPTC-15                           | 1         | CKPTIC1                                  | 1         |
| 1    | VC-1ZF    | VC-MPTC-15                           | 1         | CKPTIC1                                  | 1         |
| 2    | VC-2F     | VC-MPTC-15                           | 2         | CKPTIC1                                  | 2         |



VC-5F

| Zone | Mainframe | Mold Power Cable | Qty. Req. | Thermocouple Cable | Qty. Req. | Power Connectors | Qty. Req. | Thermocouple Connectors | Qty. Req. |
|------|-----------|------------------|-----------|--------------------|-----------|------------------|-----------|-------------------------|-----------|
| 5    | VC-5F     | VC-5PC           | 1         | VC-5TC             | 1         | VC-5MPC          | 1         | VC-5MTC                 | 1         |
| 8    | VC-8F     | VC-8PC           | 1         | VC-8TC             | 1         | VC-8MPC          | 1         | VC-8MTC                 | 1         |
| 12   | VC-12F    | VC-12PC          | 1         | VC-12TC            | 1         | VC-12MPC         | 1         | VC-12MTC                | 1         |



VC-12F

| Zone | Mainframe | Mold Power Cable  | Qty. Req. | Thermocouple Cable | Qty. Req. | Power Connectors    | Qty. Req. | Thermocouple Connectors | Qty. Req. |
|------|-----------|-------------------|-----------|--------------------|-----------|---------------------|-----------|-------------------------|-----------|
| 16   | VC-16F    | VC-8PC            | 2         | VC-8TC             | 2         | VC-8MPC             | 2         | VC-8MTC                 | 2         |
| 20*  | VC-20F    | VC-8PC<br>VC-12PC | 1<br>1    | VC-8TC<br>VC-12TC  | 1<br>1    | VC-8MPC<br>VC-12MPC | 1<br>1    | VC-8MTC<br>VC-12MTC     | 1<br>1    |
| 24   | VC-24F    | VC-12PC           | 2         | VC-12TC            | 2         | VC-12MPC            | 2         | VC-12MTC                | 2         |
| 28*  | VC-28F    | VC-8PC<br>VC-12PC | 2<br>1    | VC-8TC<br>VC-12TC  | 2<br>1    | VC-8MPC<br>VC-12MPC | 2<br>1    | VC-8MTC<br>VC-12MTC     | 2<br>1    |
| 32*  | VC-32F    | VC-8PC<br>VC-12PC | 1<br>2    | VC-8TC<br>VC-12TC  | 1<br>2    | VC-8MPC<br>VC-12MPC | 1<br>2    | VC-8MTC<br>VC-12MTC     | 1<br>2    |
| 36   | VC-36F    | VC-12PC           | 3         | VC-12TC            | 3         | VC-12MPC            | 3         | VC-12MTC                | 3         |
| 40*  | VC-40F    | VC-8PC<br>VC-12PC | 2<br>2    | VC-8TC<br>VC-12TC  | 2<br>2    | VC-8MPC<br>VC-12MPC | 2<br>2    | VC-8MTC<br>VC-12MTC     | 2<br>2    |
| 44*  | VC-44F    | VC-8PC<br>VC-12PC | 1<br>3    | VC-8TC<br>VC-12TC  | 1<br>3    | VC-8MPC<br>VC-12MPC | 1<br>3    | VC-8MTC<br>VC-12MTC     | 1<br>3    |
| 48   | VC-48F    | VC-12PC           | 4         | VC-12TC            | 4         | VC-12MPC            | 4         | VC-12MTC                | 4         |

\*When ordering 20, 28, 32, 40 and 44 zone modules, please note the additional items and quantities required.

For power input wiring schematics see users manual.

**PCS Company offers affordable and fast repair services for your Modular Temperature Controllers.**

# Over / Under Temperature Alarm

## 1 Amp - 240 VAC



The PCS Company Over / Under Temperature Alarm accessory was designed to interface with the VC-M Temperature Controller. When any individual VC-M (1 to 48 units) realizes a 30°F (17°C) temperature difference between Setpoint and Process Temperature the VC-M will trigger the MFTA-205 Audible Alarm and Auxiliary Output connector contacts. (The VC-M will also trigger the alarm when any fault condition is encountered, such as Open Thermocouple, Shorted Thermocouple, Open Output, etc.)

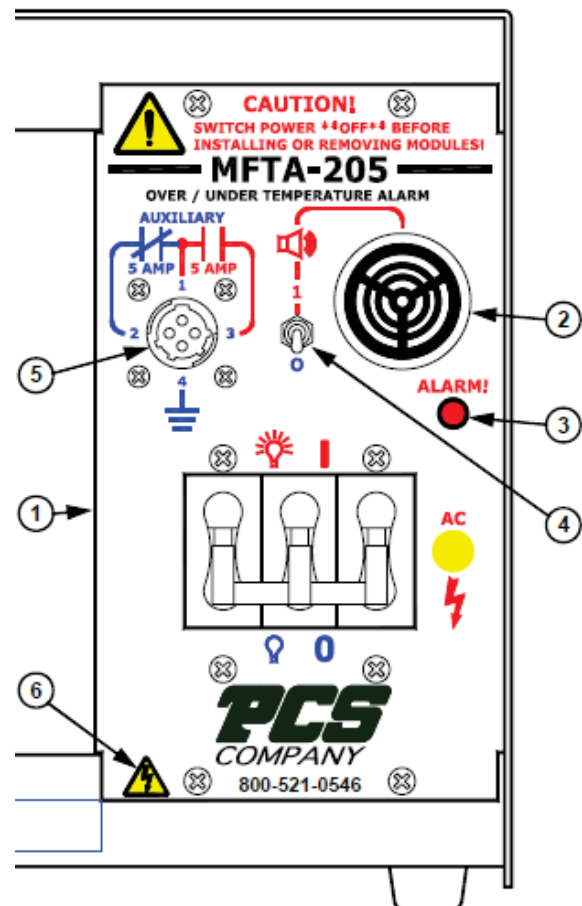
Unlike competitor's alarm modules, the MFTA-205 does not require a mainframe "zone." The circuitry is positioned behind the mainframe circuit breaker panel and AC power is connected to the mainframe power distribution bus. This method of housing the circuitry is less expensive and saves a very valuable zone position. An auxiliary connector (and mating plug) providing 5 amp normally open and normally closed contacts is provided. The MFTA-205 can be ordered and easily installed as a kit, or can be specified and installed into the mainframe at the time of order.

### Notes:

- The MFTA-205 will also work with competitors' temperature control modules that use the same communications bus alarm circuit.
- The MFTA-205 requires the mainframe communications bus option to communicate with the temperature control modules.

### CONTROLS AND INDICATORS

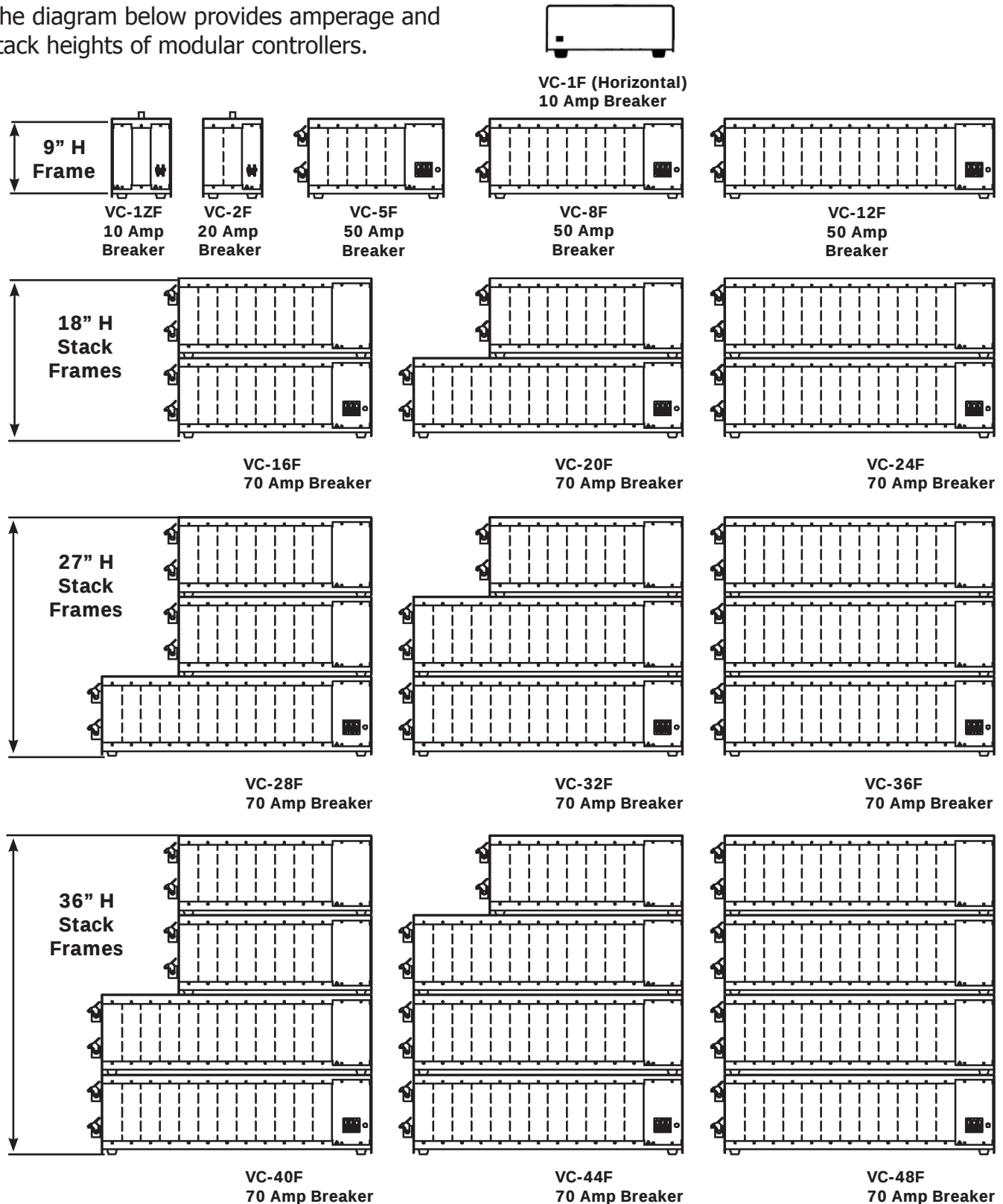
1. Faceplate - Interchangeable with Mainframe Circuit Breaker Mounting Plate.  
(Circuit breaker not included)
2. Audible Alarm Beeper
3. Red Alarm LED
4. Alarm Beeper Enable/Disable Switch
5. Auxiliary Connector (Mate Included)  
Provides one set each of 5 Amp  
Normally open & normally closed  
Switch Contacts
6. Caution, risk of electrical shock symbol



# Modular Temperature Controller Mainframe System Configurations



The diagram below provides amperage and stack heights of modular controllers.



100 Amp breaker available upon request

# Visions 3000 Controller System



The Visions 3000 Control System is an advanced and affordable Hot Runner Temperature Controller designed for ease of use, reliability and precise temperature control. The Visions 3000 offers the flexibility to efficiently and economically operate in smaller single unit environments as well as centralized manufacturing facilities with sophisticated high cavitation processes.

In today's demanding environment, the molding industry requires the capabilities of the ATC (Adaptive Thermal Control) self-tuning algorithm and powerful diagnostic (Power Temperature Comparator) features, which provides invaluable insight into the operation of the mold.

The Visions 3000 temperature control system sets an industry standard with its proven robust design, precise temperature control, sophisticated features, ease of operation, dependability, modular design, flexibility and scalability of size.

Visions 3000 software incorporates many exclusive and intuitive features which allows superior operation and control over a wide range of molding applications. The Visions 3000 software also provides easy access to a variety of informational and diagnostic features, start up functions, adjustable alarm limits, boost, standby, zone slaving, password protection, wiring diagnostics and one-way and two-way communications, to mention just a few.



# Visions 3000 Controller System Features



## **Affordability**

The Visions 3000 incorporates a wide variety of features at an economical price.

## **ATC Control Technology**

Adaptive Thermal Control technology utilizes an advanced algorithm which is adaptable to different molding environments for precise temperature control.

## **Boost**

The boost function is user selectable from the controller display or it can be automatic via peripheral interface. Customized or standard adjustable power group capabilities.

## **Communications**

Visions 3000 communication software allows sophisticated two-way communication capabilities by ethernet or discrete protocol. Remote devices can operate in either a supervisory function or as a command center.

## **Ease of use**

Turn the system on and enter set points and Visions 3000 intelligent start up function will do the rest. If any zone does not reach the desired set point, the system will alarm indicating the deficient zone.

## **Global Editing Feature**

Control set points and boost individually or grouped.

## **Large Color Screen**

The visibility of the LCD screen is suitable for any environment.

## **Multilingual**

Visions 3000 can support English, Spanish, Danish, German and Italian. Other languages optional.

## **Power Temperature Comparator**

A diagnostic feature which displays actual power and temperature versus time.

## **Durable**

The Visions 3000 unit is manufactured to withstand rigorous industrial environments.

## **Safe Mode**

Allows the system to run at a lower temperature if in idle, for a short period of time.

## **Security**

Three levels of security to protect the system from tampering.

## **Self Diagnostics**

An intuitive suite of functions available from start-up through operations. (See LED diagnostic code card and manual.)

## **Service**

Cards can be changed easily with no interruption, making repairs quick and simple.

## **Slaving**

When one or more zones do not have thermocouple feedback, they can be linked to zones with similar characteristics.

## **Soft Start**

An automatic feature which bakes moisture out of the tool by slowly bringing up the temperature of the mold then supplying power until the measured value is within the proportional band for each zone.

## **System Alarm**

The system will alert the technician if errors occur within the molding operation.

## **Tool Database**

Storage capacity of 100 or more toolsets.

## **Toolguard**

An exclusive patented feature of Visions 3000 which monitors the performance and operations on the mold and can automatically put the system into safe mode if the operation becomes damaging. Toolguard prevents heat buildup in the mold.

# Visions 3000 Controller System

## Self Diagnostics

The Visions 3000 Tool Diagnostics Suite performs a full set of functional tests to determine the condition of the mold, controller and machine operation.

## Tool Diagnosis

Troubleshoots new or existing tools, checking for faults such as:

- Swapped heater or thermocouple wires. If one is found, the controller indicates the affected zone.
- Heater power monitoring (heater amperage and/or wattage) to detect current leakage
- Heater resistance monitoring to predict heater failure.
- Thermocouple open, short, reversed, etc.
- Measures resistance of each heater for failure analysis.

## Toolguard

This patented feature monitors the performance and operation of the mold cooling system. The controller will alarm, putting the system in safe mode if a water cooling problem is detected.

## Machine Interface

Visions 3000 can take a cyclical or constant input from the machine and tool while in production and trigger a shut down if operations cease after a selectable period of time.

## Visual Diagnostics

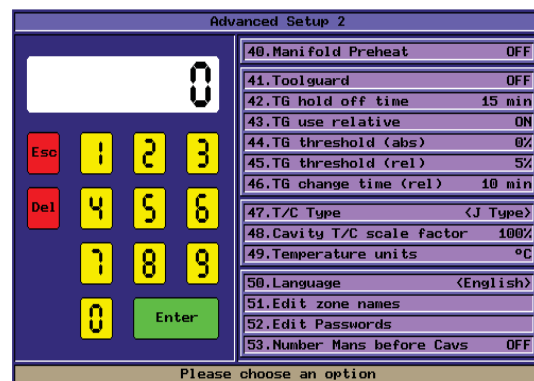
LED's are visible on the front control panel monitoring CPU communications, fuse condition and output activity of each zone.

## Surface Graphs

Surface Graphs provide immediate insight into the operation of all tool zones.

## Trend graphs

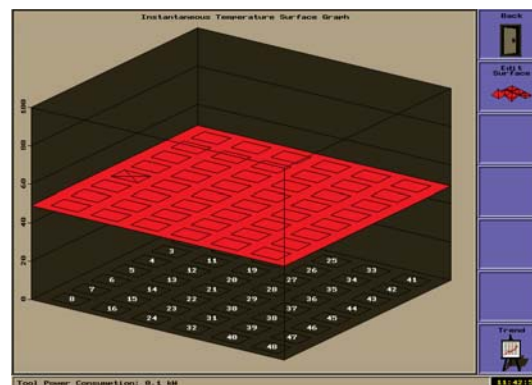
Provides a scalable display of the historic values for a particular zone.



Input Screen



Temperature Zone Display with Amp



Trend Graph

# Visions 3000 Controller System



## Graphic Visualization

### Surface Graphs

The surface graph feature (figure 1) has been designed to offer immediate insight into the operational characteristics of the tool. Using this patented feature, the operator no longer has to scroll through each zone to determine tool operating conditions. Anomalies can be seen with a single glance.

Surface graph displays temperature values, output power or output percentage information from the tool in a three dimensional graph. This diagnostic method provides a much quicker and simpler approach than tabulated data or trend graphics

If anomalies are detected within a zone or group of zones, the particular Power Temperature Comparator graph for those zones can be called up for an in-depth investigation.

### Power Temperature Comparator Graphs

A scalable display (figure 2) of the actual measured value of temperature and power for each zone on the mold. The Power Temperature Comparator Graph used in conjunction with the Surface Graph feature, expedites troubleshooting.

### Viewing modes

Three viewing modes enable the operator to select the level of detail seen from 18 to 84 zones per screen.

Normal mode (figure 3) has a medium density display with up to 36 zones. Zone number, set point, power, temperature and errors are shown.

Mode 1 (figure 4) has a high density display with up to 84 zones at one time. The same information as in the normal display, but condensed.

Mode 2 (figure 5) has a low density display with up to 18 zones. Expanded view of data for each zone, including a time line graph of measured temperature and output power.

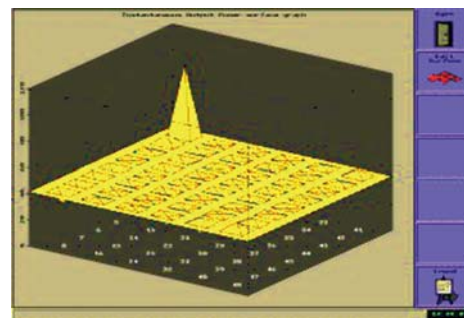


Figure 1

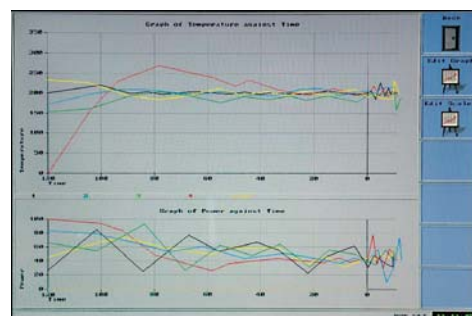


Figure 2



Figure 3



Figure 4

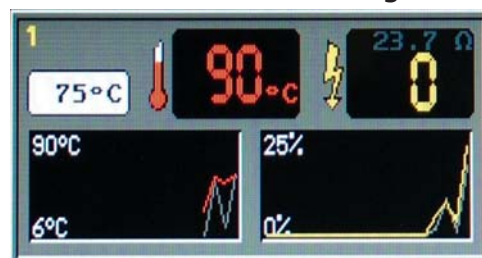


Figure 5

# Mold End Pre-Wired Terminal Mounting Boxes



When ordering combination mounting boxes choose the item number and required quantity for the selected mainframe zones.



**VC-2TB-TS**



**VC-5TB-TS**



**VC-8TB-TS**



**VC-12TB-TS**

## Mold End Pre-Wired Terminal Mounting Boxes

| Mainframe Zone | Item Number | Qty. Required | Additional Item Number | Additional Qty. Required |
|----------------|-------------|---------------|------------------------|--------------------------|
| 2              | VC-2TB-TS   | 1             |                        |                          |
| 5              | VC-5TB-TS   | 1             |                        |                          |
| 8              | VC-8TB-TS   | 1             |                        |                          |
| 12             | VC-12TB-TS  | 1             |                        |                          |
| 16             | VC-8TB-TS   | 2             |                        |                          |
| 20*            | VC-8TB-TS   | 1             | VC-12TB-TS             | 1                        |
| 24             | VC-12TB-TS  | 2             |                        |                          |
| 28*            | VC-8TB-TS   | 2             | VC-12TB-TS             | 1                        |
| 32*            | VC-8TB-TS   | 1             | VC-12TB-TS             | 2                        |
| 36             | VC-12TB-TS  | 3             |                        |                          |
| 40*            | VC-8TB-TS   | 2             | VC-12TB-TS             | 2                        |
| 44*            | VC-8TB-TS   | 1             | VC-12TB-TS             | 3                        |
| 48             | VC-12TB-TS  | 4             |                        |                          |

\*When ordering for zones 20, 28, 32, 40, and 44, please note the additional items and quantities required.

# Mold End Pre-Wired Terminal Mounting Boxes



VC-2TB-TS



VC-5TB-TS

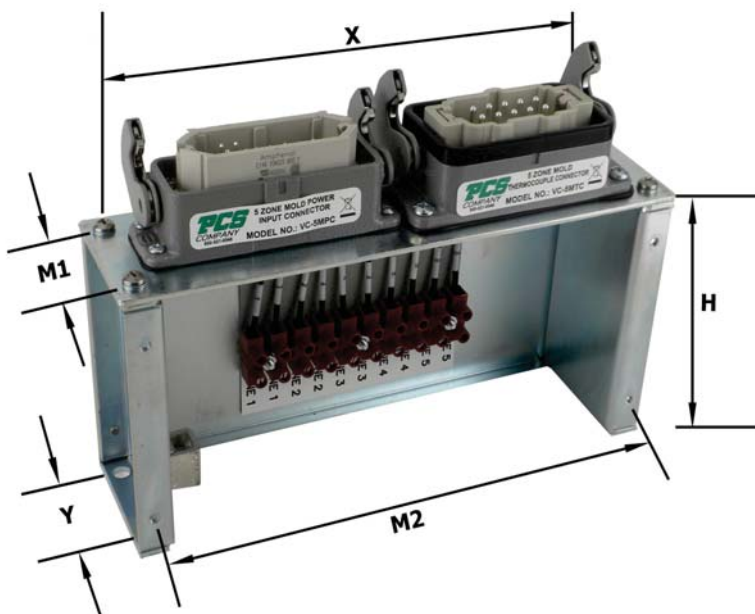


VC-8TB-TS



VC-12TB-TS

Choose Prewired Terminal Mounting Boxes to save time and money during installation. Comes with all necessary connectors for easy set up. Service friendly maintenance.



M= Mounting screw spacing. Clearance for 1/4 SHCS.

## Mold End Pre-Wired Terminal Mounting Boxes

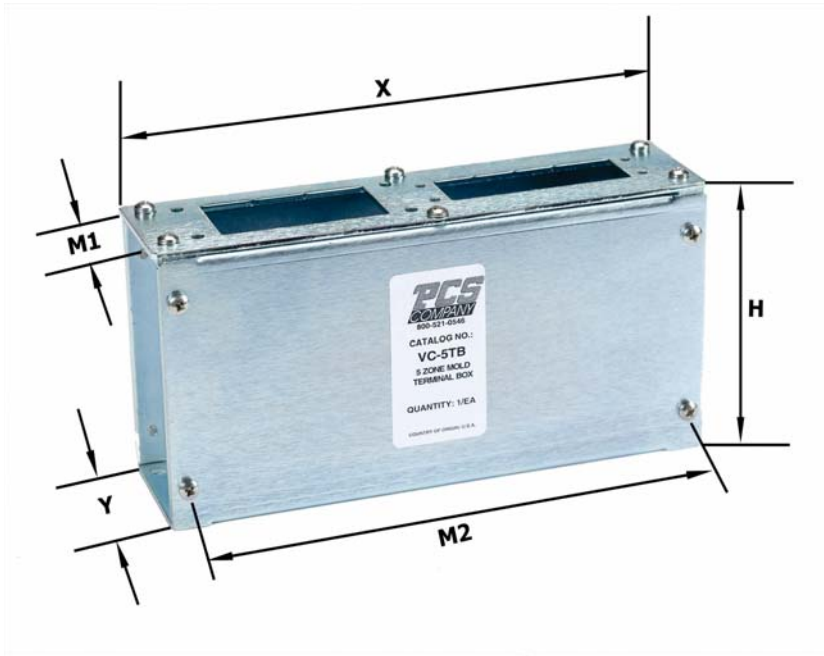
| Item Number | Dimensions in inch |        |       |       |       | Accepts            |
|-------------|--------------------|--------|-------|-------|-------|--------------------|
|             | Y                  | X      | H     | M1    | M2    |                    |
| VC-2TB-TS   | 2.750              | 4.880  | 4.250 | 1.500 | 4.250 | (2) CKPTIC-1       |
| VC-5TB-TS   | 2.750              | 8.660  | 4.250 | 1.500 | 8.031 | VC-5MPC, VC-5MTC   |
| VC-8TB-TS   | 2.750              | 9.470  | 4.250 | 1.500 | 8.843 | VC-8MPC, VC-8MTC   |
| VC-12TB-TS  | 2.750              | 10.530 | 4.250 | 1.500 | 9.906 | VC-12MPC, VC-12MTC |

Comes with all necessary connectors installed and pre-wired to the terminal strip.

# Mold End Blank Combination Terminal Mounting Boxes



Choose the Combination Terminal Mounting Box for its economical and rugged design.



M= Mounting screw spacing. Clearance for 1/4 SHCS.



**VC-2TB**



**VC-5TB**



**VC-8TB**



**VC-12TB**

## Mold End Blank Combination Terminal Mounting Boxes

| Item Number | Dimensions in inch |        |       |       |       | Accepts            |
|-------------|--------------------|--------|-------|-------|-------|--------------------|
|             | Y                  | X      | H     | M1    | M2    |                    |
| VC-2TB      | 2.750              | 4.880  | 4.250 | 1.500 | 4.250 | (2) CKPTIC-1       |
| VC-5TB      | 2.750              | 8.660  | 4.250 | 1.500 | 8.031 | VC-5MPC, VC-5MTC   |
| VC-8TB      | 2.750              | 9.470  | 4.250 | 1.500 | 8.843 | VC-8MPC, VC-8MTC   |
| VC-12TB     | 2.750              | 10.530 | 4.250 | 1.500 | 9.906 | VC-12MPC, VC-12MTC |

# Mold Power & Thermocouple Cables



Mold power cables are used to connect the mainframe to the power input connector on the mold. Available in lengths of 10, 15 & 20 feet. The VC-12PC mold power cable also serves as a universal cable for connecting any 15 Amp mainframe to any 15 Amp mold power input connector. The maximum number of zones will be determined by the connector in the mold.

**Special Power and Thermocouple Cables Available Upon Request.**



## Mold Power cables

| Item Number | Number of zones (Max.) | From 15 Amp mainframe(s) | To mold end | Length |
|-------------|------------------------|--------------------------|-------------|--------|
| VC-5PC10    | 5                      | 5, 8, 12 zone            | VC-5MPC     | 10 ft. |
| VC-8PC10    | 8                      | 8, 12 zone               | VC-8MPC     | 10 ft. |
| VC-12PC10   | 12                     | 12 zone                  | VC-12MPC    | 10 ft. |
| VC-5PC      | 5                      | 5, 8, 12 zone            | VC-5MPC     | 15 ft. |
| VC-8PC      | 8                      | 8, 12 zone               | VC-8MPC     | 15 ft. |
| VC-12PC     | 12                     | 12 zone                  | VC-12MPC    | 15 ft. |
| VC-5PC20    | 5                      | 5, 8, 12 zone            | VC-5MPC     | 20 ft. |
| VC-8PC20    | 8                      | 8, 12 zone               | VC-8MPC     | 20 ft. |
| VC-12PC20   | 12                     | 12 zone                  | VC-12MPC    | 20 ft. |

Thermocouple cables are used to connect the mainframe to the thermocouple connector on the mold. Available in lengths of 15 feet.



## Thermocouple cables

| Item Number | Number of zones (Max.) | From 15 Amp mainframe(s) | To mold end | Length |
|-------------|------------------------|--------------------------|-------------|--------|
| VC-5TC10    | 5                      | 5, 8, 12 zone            | VC-5MTC     | 10 ft  |
| VC-8TC10    | 8                      | 8, 12 zone               | VC-8MTC     | 10 ft  |
| VC-12TC10   | 12                     | 12 zone                  | VC-12MTC    | 10 ft  |
| VC-5TC      | 5                      | 5, 8, 12 zone            | VC-5MTC     | 15 ft. |
| VC-8TC      | 8                      | 8, 12 zone               | VC-8MTC     | 15 ft. |
| VC-12TC     | 12                     | 12 zone                  | VC-12MTC    | 15 ft. |
| VC-5TC20    | 5                      | 5, 8, 12 zone            | VC-5MTC     | 20 ft. |
| VC-8TC20    | 8                      | 8, 12 zone               | VC-8MTC     | 20 ft. |
| VC-12TC20   | 12                     | 12 zone                  | VC-12MTC    | 20 ft. |

## Power & Thermocouple combination cable 10 & 15 ft. lengths



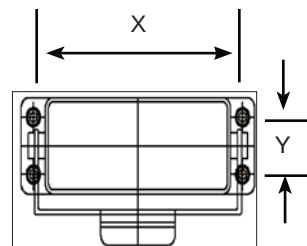
| Item Number | Number of zones (Max.) | From 10 Amp mainframe(s) | To mold end |
|-------------|------------------------|--------------------------|-------------|
| VC-MPTC-10  | 1                      | 1, 2 zone                | CKPTIC-1    |
| VC-MPTC-15  | 1                      | 1, 2 zone                | CKPTIC-1    |

**\*Custom lengths and connectors available upon request.**

# Mold Connectors

Mold Power and Thermocouple input connectors are mounted on the mold to accept the appropriate cable.

Mold Power Connectors are supplied with six inches of number 14 gauge wire leads and a ground wire.\*



VC-5MPC



VC-8MPC



VC-12MPC

## Mold Power Input Connectors

| Item Number | Number of zones (Max.) | Amps (Max.) per zone | Dimensions in inch |      |
|-------------|------------------------|----------------------|--------------------|------|
|             |                        |                      | X                  | Y    |
| VC-5MPC     | 5                      | 15                   | 3.386              | .689 |
| VC-8MPC     | 8                      | 15                   | 3.386              | .689 |
| VC-12MPC    | 12                     | 15                   | 3.386              | .689 |



VC-5MTC



VC-8MTC



VC-12MTC

## Mold Thermocouple Connectors

| Item Number | Number of Pins | Number of zones (Max.) | Dimensions in inch |       |
|-------------|----------------|------------------------|--------------------|-------|
|             |                |                        | X                  | Y     |
| VC-5MTC     | 10             | 5                      | 3.268              | 1.260 |
| VC-8MTC     | 16             | 8                      | 4.055              | 1.260 |
| VC-12MTC    | 24             | 12                     | 5.118              | 1.260 |

\*Ground wire must be connected to mold to ensure operator safety.

# Accessories & Replacement Parts



| Item Number | Item Description          |
|-------------|---------------------------|
| CKPM-112-BG | Power cable frame end kit |



| Item Number | Item Description         |
|-------------|--------------------------|
| CKPF-112-BG | Power cable mold end kit |



| Item Number | Item Description              |
|-------------|-------------------------------|
| CKTF-15-G   | 5 zone T/C cable mold end kit |



| Item Number | Item Description              |
|-------------|-------------------------------|
| CKTF-18-G   | 8 zone T/C cable mold end kit |



| Item Number | Item Description               |
|-------------|--------------------------------|
| CKTF-112-G  | 12 zone T/C cable mold end kit |



| Item Number | Item Description         |
|-------------|--------------------------|
| CKTF-112-AG | T/C cables frame end kit |



| Item Number | Item Description             |
|-------------|------------------------------|
| CKPTIC-1    | 1 zone 10 Amp mold connector |



| Item Number | Item Description        |
|-------------|-------------------------|
| CKPTOC-1    | 1 zone 10 amp connector |

# Accessories & Replacement Parts



| Item Number | Item Description                          |
|-------------|-------------------------------------------|
| CKPTM-1     | 1 zone cable connector male without latch |



| Item Number | Item Description                            |
|-------------|---------------------------------------------|
| CKPTF-1     | 1 zone cable connector female without latch |



| Item Number | Item Description                       |
|-------------|----------------------------------------|
| CKPTM-1L    | 1 zone cable connector male with latch |



| Item Number | Item Description                         |
|-------------|------------------------------------------|
| CKPTF-1L    | 1 zone cable connector female with latch |



| Item Number | Item Description    |
|-------------|---------------------|
| CKF-312-G   | Edge card connector |



| Item Number | Item Description            |
|-------------|-----------------------------|
| AC2024F     | 240 V power input connector |



| Item Number | Item Description                         |
|-------------|------------------------------------------|
| ABC-10      | 10 amp module fuse replacements (5 pack) |



| Item Number | Item Description                         |
|-------------|------------------------------------------|
| ABC-15      | 15 amp module fuse replacements (5 pack) |



| Item Number | Item Description                         |
|-------------|------------------------------------------|
| HWCC-1      | T/C crimp connectors 18-22 AWG (30 pack) |



| Item Number | Item Description                         |
|-------------|------------------------------------------|
| HWCC-3      | PWR crimp connectors 14-16 AWG (30 pack) |

# Accessories and Replacement Parts



| Item Number | Item Description |
|-------------|------------------|
| PCT1000     | Crimp tool       |



| Item Number | Item Description    |
|-------------|---------------------|
| PET0001     | Pin extraction tool |



| Item Number | Item Description             |
|-------------|------------------------------|
| PIN0114     | Male pin for power connector |



| Item Number | Item Description       |
|-------------|------------------------|
| R144-017    | T/C ferrules (50 pack) |



| Item Number | Item Description                   |
|-------------|------------------------------------|
| R172-002    | White edge card contacts (20 pack) |



| Item Number | Item Description                        |
|-------------|-----------------------------------------|
| VC-FS       | Floor Stand<br>(Mainframe not included) |

Assembly and mainframe mounting hardware included. Stand is made from heavy gauge steel and includes locking casters (400lb. rating).

## Step Down Transformer Kit

PCS Transformer Kits are pre-wired and include an enclosed transformer (3-phase, 480 VAC input, 240 VAC output) with adjustable transformer primary voltage taps, one 10-foot cable for AC power-in (no connector), one 6-foot cable for mainframe (AC input), one fused safety switch, two extra fuses, floor stand, and all mounting brackets and required hardware.

## Product not shown

| Item Number | Item Description       |
|-------------|------------------------|
| TK6-1A-G    | 6 KVA Transformer Kit  |
| TK9-1A-G    | 9 KVA Transformer Kit  |
| TK15-1A-G   | 15 KVA Transformer Kit |
| TK30-1A-G   | 30 KVA Transformer Kit |

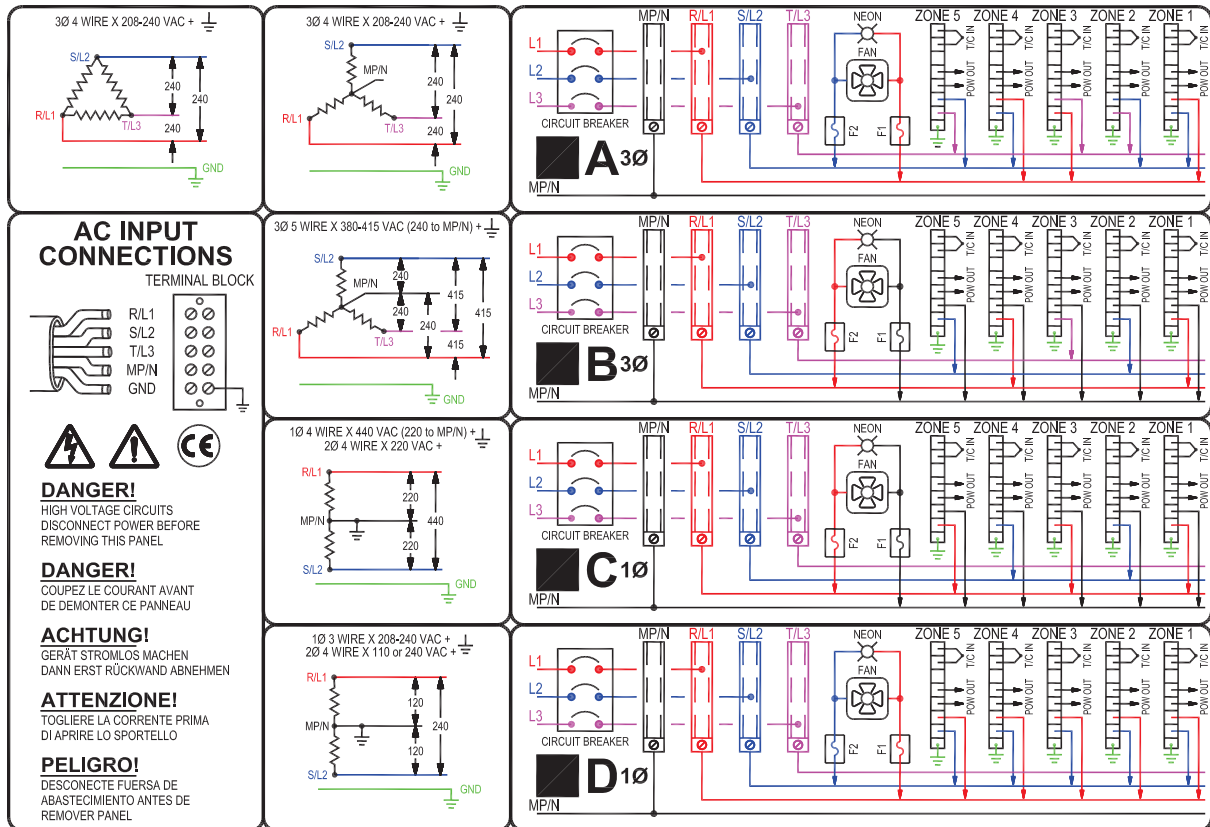


| Item Number | Item Description      |
|-------------|-----------------------|
| VC-10BP     | Mainframe blank panel |

# Mainframe Wiring Diagram



## MAINFRAME INPUT WIRING OPTIONS



### A NORTH AMERICAN STANDARD 3Ø 4 WIRE; 208-240 VAC

UNLESS OTHERWISE SPECIFIED MAINFRAMES ARE SUPPLIED WIRED IN THIS 208-240 VAC 3Ø CONFIGURATION

As detailed in diagram "A" above each control zone is powered by the voltage developed across one of the three phases R/L1, S/L2 and T/L3 (MP/N is not used). The zone input is staggered to balance the power system: Zone 1 to L1 & L2, Zone 2 to L2 & L3, Zone 3 to L3 & L1, Zone 4 to L1 & L2 and repeats as such.

### B EUROPE / ASIA STANDARD 3Ø 5 WIRE; 380-415 VAC (240 to MP/N)

**WARNING:** The line to line voltages in this system are 380-415 VAC. The 240 VAC control modules and mainframe internal components will be SEVERELY DAMAGED if connected to this high voltage!

As detailed in diagram "B" above each control zone is powered by the 240 volts developed across one of the three phases **\*\* AND \*\*** MP/N (neutral): R/L1 and MP/N, S/L2 and MP/N, T/L3 and MP/N.

The zone input is staggered to balance the power system: Zone 1 to L1 & MPN, Zone 2 to L2 & MPN, Zone 3 to L3 & MPN, Zone 4 to L1 & MPN and repeats as such.

REWIRING THE MAINFRAME from one power system to another is easy and requires no special tools like crimp applicators: 1) Carefully cut the wire ties off of the zone input wiring bundle (lower bundle), 2) Disconnect all of the quick connect terminals from the RL1, SL2, TL3 and MPN brass distribution strips, 3) Reconnect each zone input wiring to the proper brass distribution strip as detailed above.

### C 1Ø 4 WIRE; 440 VAC (220 to MP/N) \*OR\* 2Ø 4 WIRE; 220 VAC

**WARNING:** The line to line voltage in this system is 440 VAC.

The 240 VAC control modules and mainframe internal components will be SEVERELY DAMAGED if connected to this high voltage! As detailed in diagram "C" above each control zone is powered by the 220 volts developed across one of the two phases **\*\* AND \*\*** MP/N (neutral): R/L1 and MP/N and S/L2 and MP/N.

The zone input is staggered to balance the power system: Zone 1 to L1 & MPN, Zone 2 to L2 & MPN, Zone 3 to L1 & MPN, Zone 4 to L2 & MPN and repeats as such.

### D NORTH AMERICAN STANDARD 1Ø 3 WIRE; 208-240 VAC MAY BE USED ON 2Ø 4 WIRE 110 or 240 VAC

This is the most common 1Ø power system in the United States.

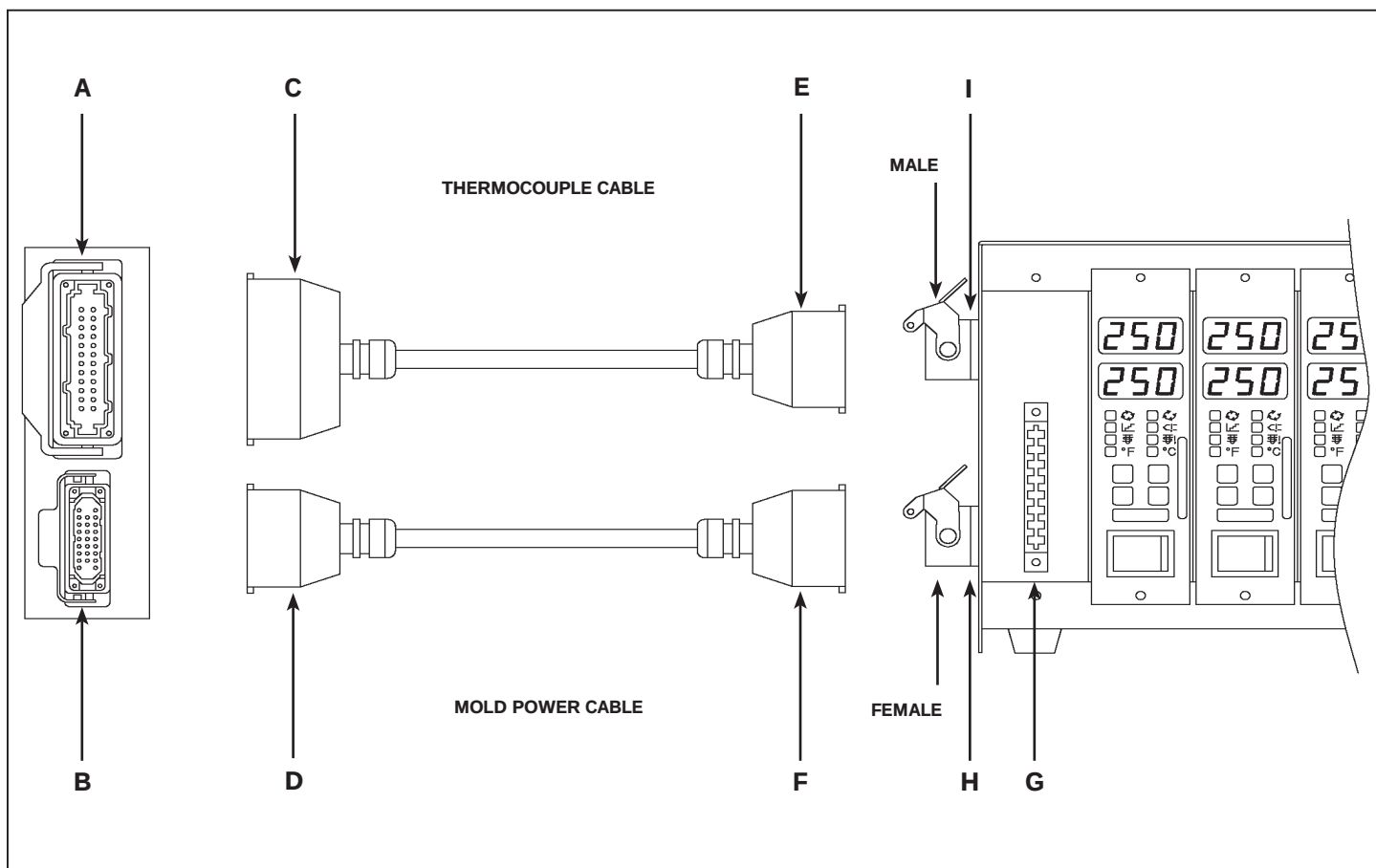
As detailed in diagram "D" above each control zone is powered by the 240 volts developed across the two phases R/L1 and S/L2: Zone 1 to L1 & L2, Zone 2 to L1 & L2 and repeats as such.

This power system will supply 120 VAC, if required, for use with a 120 VAC mainframe and control modules. In such a case (unless purchased as a 120V mainframe) the mainframe control zone input wiring must be changed so that the 120 VAC for each control zone is developed across one of the two phases **\*\* AND \*\*** MP/N (neutral) and staggered to balance the power system: Zone 1 to L1 & MPN, Zone 2 to L2 & MPN, Zone 3 to L1 & MPN and repeats as such.

**WARNING: DISCONNECT ALL POWER BEFORE SERVICE!!**



# Replacement Parts Diagram



| Reference Letter | Description                                                   | Item Number |
|------------------|---------------------------------------------------------------|-------------|
| A                | Mold Thermocouple Output Connectors                           | See pg. 13  |
| B                | Mold Power Input Connectors                                   | See pg. 13  |
| C                | Mold End Kit for 5-Zone Thermocouple cable                    | CKTF-15-G   |
|                  | Mold End Kit for 8-Zone Thermocouple cable                    | CKTF-18-G   |
|                  | Mold End Kit for 12-Zone Thermocouple cable                   | CKTF-112-G  |
| D                | Mold End Kit for all 15 Amp Power cables                      | CKPF-112-BG |
| E                | Frame End Kit for all Thermocouple cables                     | CKTF-112-AG |
| F                | Frame End Kit for all 15 Amp Power cables                     | CKPM-112-BG |
| G                | Edge Card Kit for all mainframe PC Boards (10, 15, or 30 Amp) | CKF-312-G   |
| H                | Power output kit for all 15 Amp mainframes                    | CKPF-212-BG |
| I                | Thermocouple input kit for all mainframes                     | CKTM-212-AG |

