Using This Retrofit Guide

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To locate a power controller open, the file Power Series Source.pdf at bottom of this document, then search on the part number such as PC21-N20B-0000. Press the Ctrl+F to highlight search box. Enter partial or complete model number. Hit enter key to search document. Use the Help feature in Adobe Reader on how to search documents. Customers report that the attachments will not display when using Adobe within Chrome or a program other than Adobe Reader.

Some retrofit choices do not have all features or inputs/output types of the original. Notes are added to bring attention to differences.

If you do not find your model number, contact Watlow Technical Support. For custom models contact the OEM (Original Equipment Manufacturer) for possible replacement.

If there are multiple listings, then the retrofit is conditional upon field use. Select the appropriate selection. The Specification Sheets old and new are included at the bottom of this document when available.

Before selecting a replacement controller:

1. Know the application.
   - Ambient Temperature range (sizing a power controller for current depends on the ambient temperature)
   - Input command signal type that will activate the power controller
   - Additional input requirements – remote set points, secondary actions or events
   - Diagnostic Output required – Open heater, shorted SCR
     - Is the power-switching device upgradeable?
   - Operating voltage of power controller – 24VDC, 120VAC, 200VAC, 240VAC
   - Nominal Line voltage supplied – 120VAC, 200VAC, 208VAC, 240VAC, 277VAC, 380VAC, 400VAC, 415VAC, 480VAC, 600VAC
   - Load voltage of heater – 120VAC, 200VAC, 240VAC, 277VAC, 380VAC, 400VAC, 415VAC, 480VAC, 600VAC, 690VAC
   - Configuration of heater – 3-phase DELTA, 3-phase ungrounded WYE, 3-phase WYE grounded WYE, single phase
   - Mounting requirements – panel space and mounting method
   - Agency requirements
   - Shorted-Circuit Current Rating (SCCR) – ASPRYE is rated at 100kA
   - Space requirements, retrofits are rarely the exact same dimensions

2. Know the product.
   - Inputs – quantity and type
   - Alarms – quantity and type
   - Communication requirements (configuration, operations, and device type connected)
   - Which power control features are required? (zero cross or phase angle, current limiting, remote control, other)

3. Use your best judgment for selecting a replacement controller. All applications require close examination of inputs, outputs and the control mode to have the controller function properly. Agency requirements may prevent a retrofit from being used.

4. Safety: Remember to make sure all redundant safety equipment is in place and working when retrofitting equipment. If a system has been retrofitted without the proper safety equipment, you could be liable if an accident occurs.
This is only a guide to replacement controllers. If you have doubts, please call (507) 494-5656 and ask for technical support or email wintechsupport@watlow.com. We are here to help. The suggested replacement will differ in fit and form. Please review the replacement controller specifications for suitability. Carefully check the notes for additional information that may apply.

**Abbreviation & Terminology** (as used in this document)

**DIN Rail** – standard DIN EN50022 mounting method for attaching devices onto a metal rail.

**Control Method** – specifies either zero cross or phase angle control. Zero cross activates at zero voltage in the waveform where phase angle activates anywhere within the waveform.

**Current Rating** – the number of electrons that may be safely passed through the SCR without damage.

**Current limit** – power controller will limit the amount of current delivered to the load for phase angle control.

**Electronics Operating AC Voltage** – voltage required to power the electronics of the power controller.

**Heater Diagnostics** – the power controller will monitor the voltage and current and notify the user when abnormal conditions occur such as open heater (no current) or shorted SCR (current flows with no command signal).

**Line Voltage** – the voltage required powering the electronics of the controller.

**Nominal Line Voltage** – specifies the expected voltage supplied to the power controller under normal conditions. The power controller is then able to notify the user of an abnormal supply voltage.

**Notes** – draws attention to retrofit differences.

**Phase** – specifies the number of phases being controlled by the SCR.

**Relay** – refers to an electromechanical relay.

**Remote** – set point is adjusted using a remote potentiometer.

**Retransmit** – the power controller will send an analog signal to another device to represent a variable such as voltage, current or power.

**Semiconductor fuse** – a device wired in series with the power controller that protects the SCR in the event of high fault current such as a heater short.

**SSR** – Solid State Relay, these devices will switch AC voltage only and require a load to latch on.

**VAC** – Volts Alternating Current

**VAC/DC** - Volts Alternating Current or Direct Current

**VDC** – Volts Direct Current