

Chroma Systems Solutions, Inc.

Input Configurations for 615XX/616XX/617XX AC Sources

AC Source

Keywords: AC Source, Input Configuration

Title:

Input Configurations for 615XX/616XX/617XX AC Sources

Product Family: **61500, 61600, 61700**

Abstract

Due to the three- phase AC input of AC sources is fed directly to bridge rectifiers, certain voltage level is required at the input terminal. When the voltage rating is 190-250Vac, it simply means that the voltage applied to each Bridge Rectifier must be 190 to 250 Vac . It doesn't matter if it's from Line to Line or from Line to Neutral. The INPUT WIRING SWITCH on the 6151x & 6161x AC Sources connect one side of the Bridge Rectifier to Neutral or an opposite Phase so that the AC Voltage across the Bridge Rectifier is always within the 190 to 250Vac range. For the 617xx AC Sources Jumpers are used to connect the input Neutral or opposite phase to the input bridge rectified in place of the INPUT WIRING SWITCH.

Solution

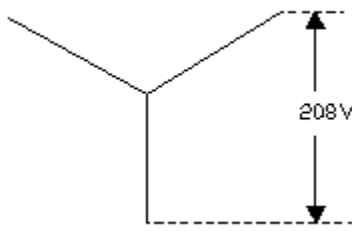
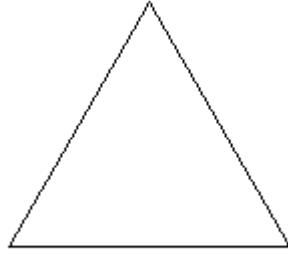
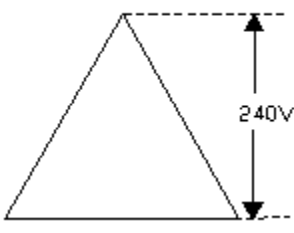
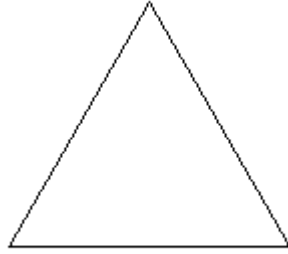
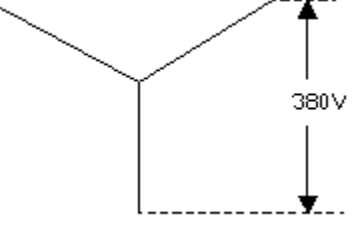
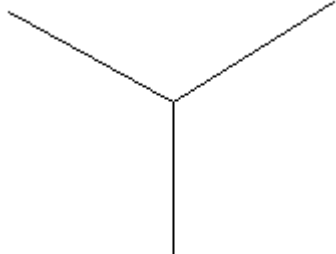
There are two available versions of the 6151x & 6161x AC Sources & A615103 based on the input ratings:

VERSION 1: Input Version rated 190-250Vac, 3 Phase, WYE (Line to Neutral Voltage) or DELTA (Line to Line Voltage)

*NOTE: In the US, WYE Voltages with a Line to Neutral voltage of 190 to 250Vac are typically not available. The only US voltages available for this version would be a 208Vac DELTA or 240Vac DELTA.

Application Note

The only US voltages available for this version would be a 208Vac DELTA or 240Vac DELTA.

	Power from the grid	Input mode for 615XX/616XX
Configuration U.S.	 <p>A diagram showing a delta configuration of three lines. A vertical double-headed arrow indicates a voltage of 208V between the top and bottom lines.</p>	 <p>A simple diagram of a triangle representing a delta configuration.</p>
U.S.	 <p>A diagram showing a delta configuration of three lines. A vertical double-headed arrow indicates a voltage of 240V between the top and bottom lines.</p>	 <p>A simple diagram of a triangle representing a delta configuration.</p>
Asia Europe	 <p>A diagram showing a delta configuration of three lines. A vertical double-headed arrow indicates a voltage of 380V between the top and bottom lines.</p>	 <p>A diagram showing a star configuration of three lines meeting at a central point.</p>

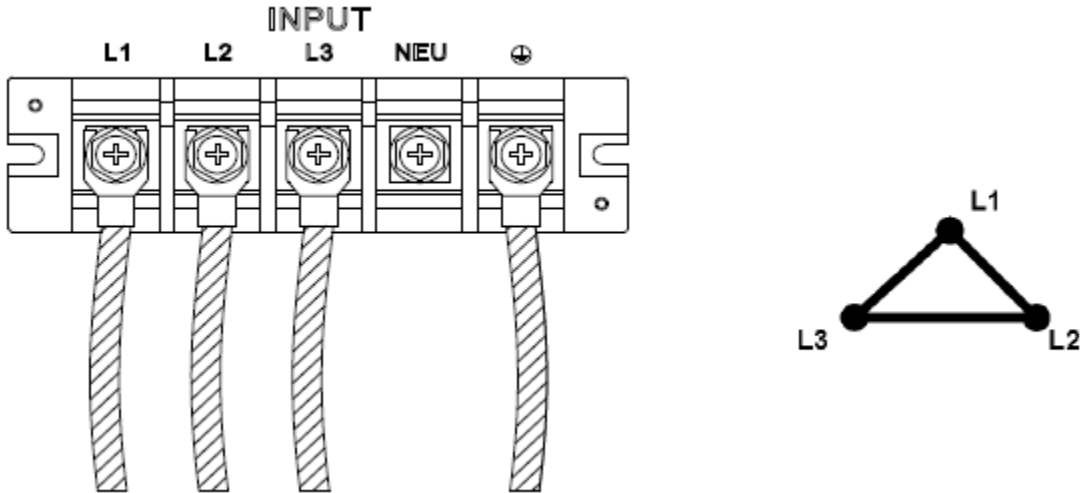


Figure 1 3-Phase Input Delta Connection

VERSION 2: Input Voltage rated 480Vac (Line to Line)/277Vac (Line to Neutral) WYE. (Also stated as rated 250-305Vac, 3 Phase, WYE (Line to Neutral Voltage) or DELTA (Line to Line Voltage)

In the US 480Vac, 3-Phase, 4-wire WYE is a typical voltage used in Industrial Buildings and some Commercial Buildings. (CAN NOT USE 480Vac DELTA because the Line to Line Voltage is too High)

*Note: For the 480Vac, 3 Phase, 4 wire (WYE) version the INPUT WIRING SWITCH is not available and the unit can only work in a WYE configuration.

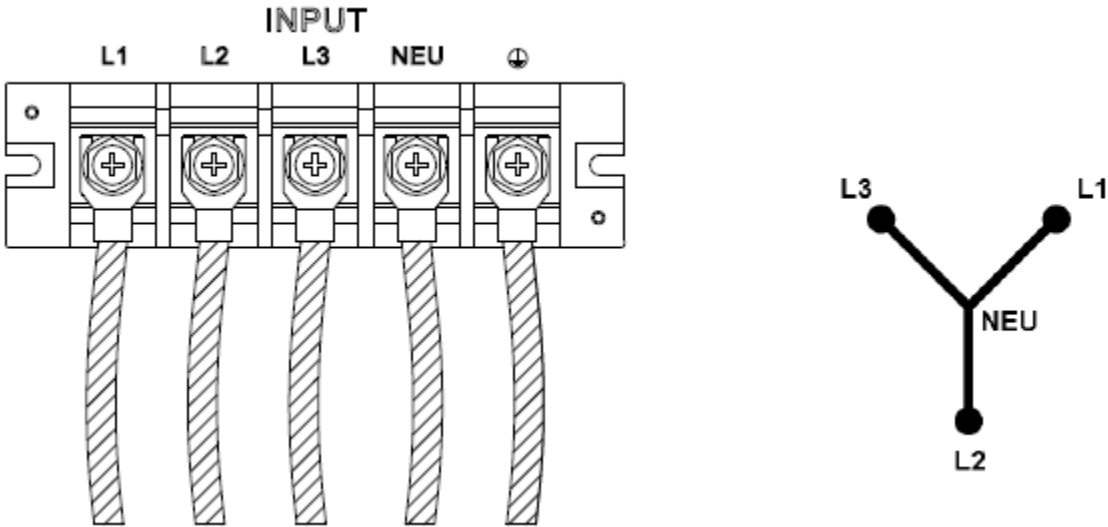


Figure 2 3-Phase Power Input Y Connection for 480V Input 615XX/616XX

61701 & 61702 AC Input for US:

VERSION: Input Version rated 90-250Vac, 3 Phase, WYE (Line to Neutral Voltage) or DELTA (Line to Line Voltage)

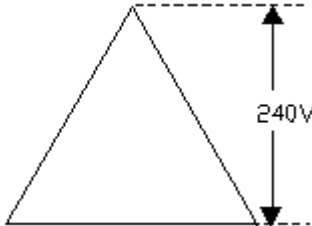
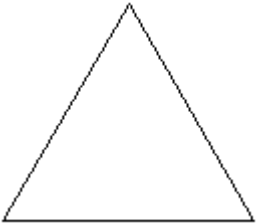
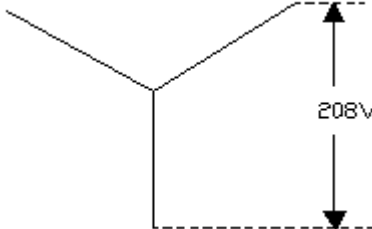
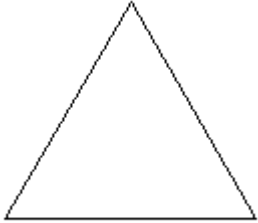
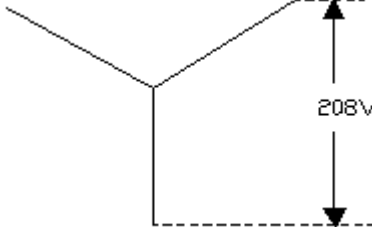
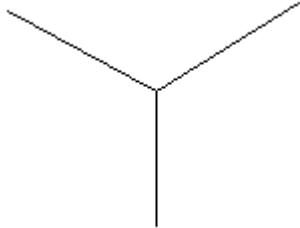
Application Note

240Vac, 3 phase, Delta {240Vac Line to Line, NO Neutral}

208Vac, 3 phase, Delta {208Vac Line to Line, NO Neutral}

208Vac, 3 phase, WYE {208Vac Line to Line, 120Vac Line to Neutral}

*NOTE: There is no 480V input voltage model available for 61700 series AC Source. For the lower power AC Sources (61701 & 61702) the low voltage Line to Neutral is acceptable.

	Power from the grid	Input connection on 61701/61702
Configuration	 <p>A diagram of a delta (Δ) configuration. It shows a solid triangle with a dashed horizontal line extending from the top vertex to the right. A vertical double-headed arrow between the top vertex and the dashed line is labeled '240V'.</p>	 <p>A diagram showing a solid triangle representing the delta connection.</p>
	 <p>A diagram of a delta (Δ) configuration. It shows a solid triangle with a dashed horizontal line extending from the top vertex to the right. A vertical double-headed arrow between the top vertex and the dashed line is labeled '208V'.</p>	 <p>A diagram showing a solid triangle representing the delta connection.</p>
	 <p>A diagram of a wye (Y) configuration. It shows a solid Y-shape with a dashed horizontal line extending from the top vertex to the right. A vertical double-headed arrow between the top vertex and the dashed line is labeled '208V'.</p>	 <p>A diagram showing a solid Y-shape representing the wye connection.</p>

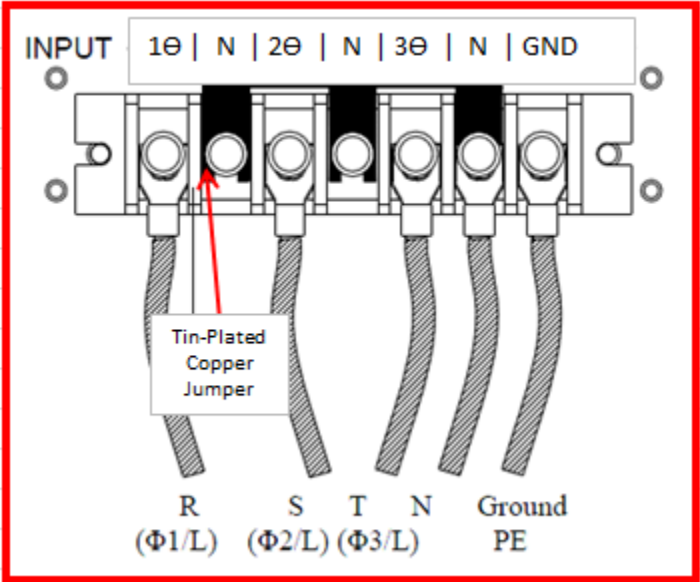


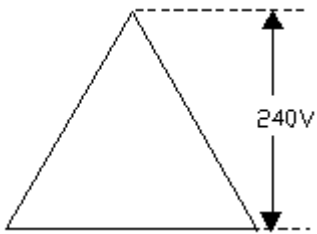
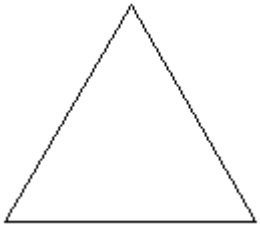
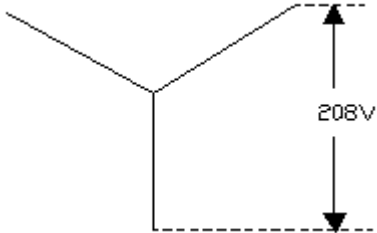
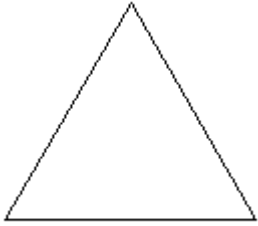
Figure 3 3-Phase Power Input Connection for 61701/61702

*Note: The 617xx series of AC Sources must use jumpers to properly configure the AC Input for a Y (WYE) configuration. See the Drawing for the proper input wiring.

61703/61704/61705 AC Input for US

208Vac, 3 phase, Delta {208Vac Line to Line, NO Neutral} (CAN NOT USE 208Vac WYE because the Line to Neutral Voltage is to Low)

240Vac, 3 phase, Delta {240Vac Line to Line, NO Neutral} (CAN NOT USE 240Vac WYE because the Line to Neutral Voltage is to Low)

	Power from the grid	Input mode on 61703/61704/61705
Configuration		
		

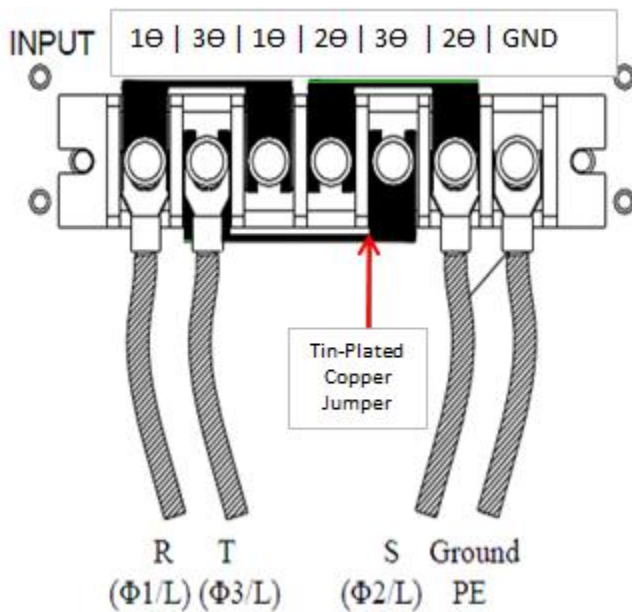


Figure 4 Delta Input Connection for 61703/61704/61705

To better understand the Input Voltage ratings for Chroma AC Sources see the drawing below. The 3 Phase ac input is fed directly to 3 Bridge rectifiers to create a DC input to the PFC circuit. When the voltage rating is 190-250Vac (Line to Line or Line to Neutral) it simply means that the voltage applied to each Bridge Rectifier must be 190 to 250Vac. It doesn't matter if it's from Line to Line or from Line to Neutral. The INPUT WIRING SWITCH on the 6151x & 6161x AC Sources connect one side of the Bridge

Rectifier to Neutral or an opposite Phase so that the AC Voltage across the Bridge Rectifier is always within the 190 to 250Vac range. For the 617xx AC Sources Jumpers are used to connect the input Neutral or opposite phase to the input bridge rectified in place of the INPUT WIRING SWITCH

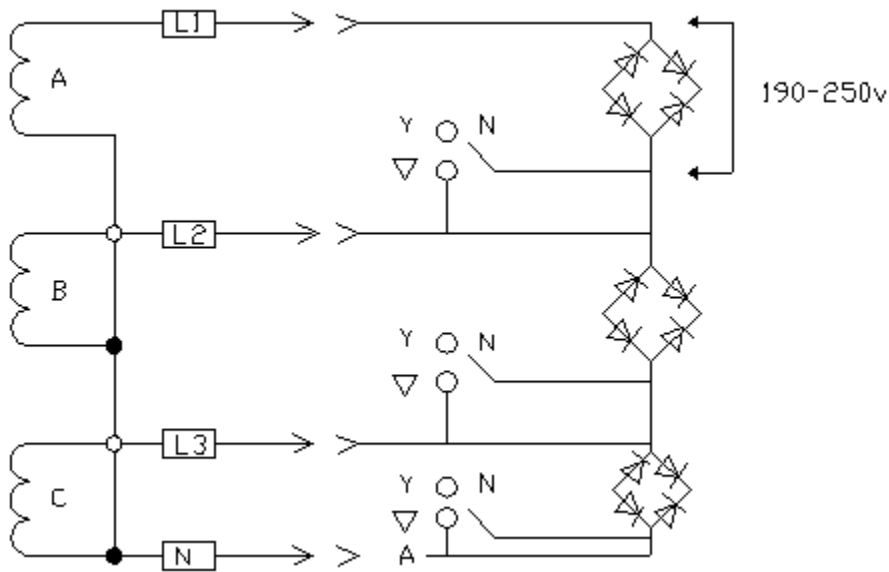


Figure 5 615XX/61611/A61503 Internal Input Power Stage Y-Δ Switch

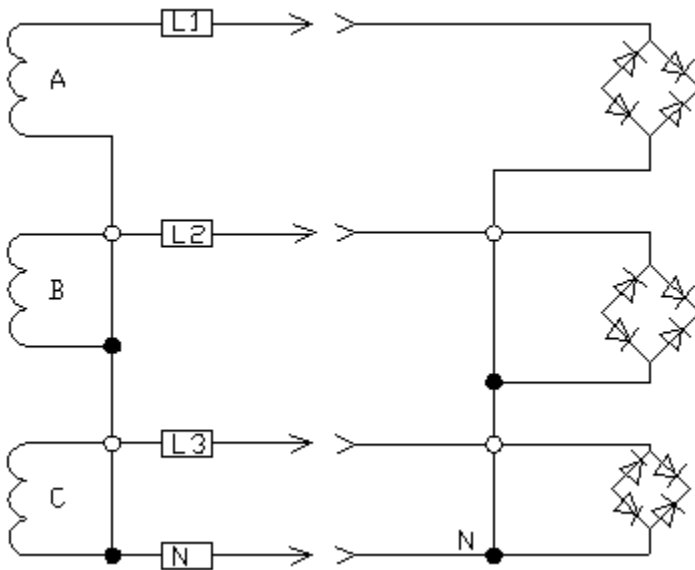


Figure 6 480V 615XX/616XX Internal Input Power Stage