

	<p>www.basler.com +1 618.654.2341 (USA) info@basler.com</p>	Model	MVC 112
		Part Number	9179200100

Introduction

The MVC 112 Manual Voltage Control provides manual control of field excitation during generator startup, commissioning, or a voltage regulator failure. The MVC 112 supplies regulated dc field power which is adjusted by a front-panel control. An Auto/Off/Manual switch enables transfer of control from a voltage regulator to the MVC 112 and vice versa. MVC 112 controls are illustrated in Figure 1.

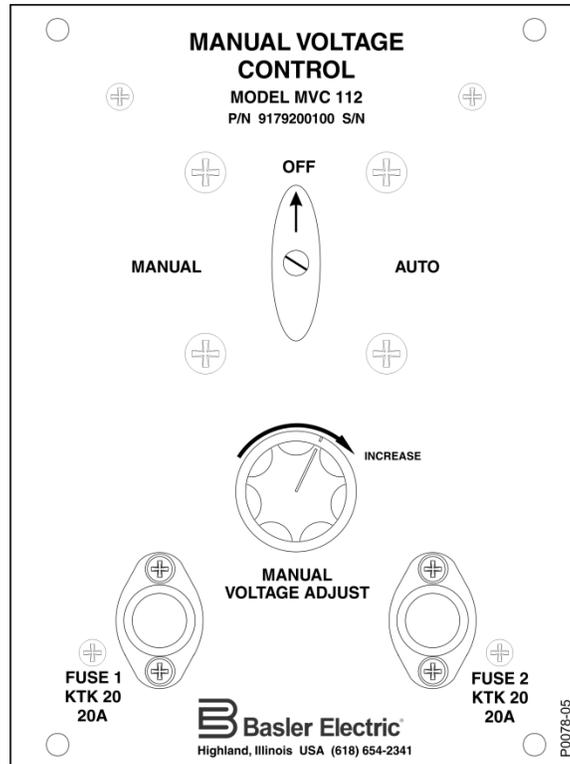


Figure 1. MVC 112 Front Panel Controls

The MVC 112 is intended for through-the-panel mounting. All connections are made at terminal blocks located on the rear panel. If desired, an external potentiometer (Basler P/N 21565) may be used for remote manual voltage adjustment.

Specifications

Input Power

Nominal:	120 Vac or 240 Vac, 1-phase
Operating Range	
120 Vac Nominal:	90 to 153 Vac
240 Vac Nominal:	170 to 305 Vac
Frequency:	50 to 400 Hz
Dissipated Power:	35 W
Minimum Residual Buildup Voltage:	5% of 120/240 Vac, nominal

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Output Power

Current Output

At 50/60 Hz Nominal Frequency: 12 Adc at 32 Vdc, 63 Vdc, or 125 Vdc nominal voltage
 At 400 Hz Nominal Frequency: 8 Adc at 32 Vdc, 63 Vdc, or 125 Vdc nominal voltage

Voltage at Maximum Potentiometer Setting

At 32 Vdc Nominal Output: 40 Vdc minimum
 At 63 Vdc Nominal Output: 79 Vdc minimum
 At 125 Vdc Nominal Output: 156 Vdc minimum

Minimum Acceptable Field Resistance

At 32 Vdc Nominal Output: 2.67 Ω
 At 63 Vdc Nominal Output: 5.25 Ω
 At 125 Vdc Nominal Output: 10.42 Ω

Regulation Accuracy

- 2% for a 10% change in input power
- 5% for a 30% change in input power

Temperature Stability

±5% for a 50°C (122°F) change in temperature

China RoHS

The following table serves as the declaration of hazardous substances for China in accordance with PRC standard SJ/T 11364-2014. The EFUP (Environment Friendly Use Period) for this product is 40 years.

PRODUCT:	MVC 112									
零件名称 Part Name	有害物质 Hazardous Substances									
	铅 Lead (Pb)	汞 Mercury (Hg)	镉 Cadmium (Cd)	六价铬 Hexavalent Chromium (Cr ⁶⁺)	多溴联苯 Polybrominated Biphenyls (PBB)	多溴二苯醚 Polybrominated Diphenyl Ethers (PBDE)	邻苯二甲酸二丁酯 Dibutyl Phthalate (DBP)	邻苯二甲酸丁苄酯 Benzyl butyl phthalate (BBP)	邻苯二甲酸二酯 Bis(2-ethylhexyl) phthalate (BEHP)	邻苯二甲酸二异丁酯 Diisobutyl phthalate (DIBP)
金属零件 Metal parts	X	O	O	O	O	O	O	O	O	O
聚合物 Polymers	O	O	O	O	O	O	O	O	O	O
电子产品 Electronics	X	O	O	O	O	O	O	O	O	O
电缆和互连配件 Cables & interconnect accessories	X	O	O	O	O	O	O	O	O	O
绝缘材料 Insulation material	O	O	O	O	O	O	O	O	O	O

本表格依据 SJ/T11364 的规定编制。

O: 表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下。

X: 表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 规定的限量要求。

This form was prepared according to the provisions of standard SJ/T11364.

O: Indicates that the hazardous substance content in all homogenous materials of this part is below the limit specified in standard GB/T 26252.

X: Indicates that the hazardous substance content in at least one of the homogenous materials of this part exceeds the limit specified in standard GB/T 26572.

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Environment

Operating Temperature:	–40 to 70°C (–40 to 158°F)
Storage Temperature:	–40 to 85°C (–40 to 185°F)
Maximum Humidity:	98%, non-condensing
Vibration Tolerance:	2 G over a range of 10 to 500 Hz
Shock Tolerance:	15 G in each of three perpendicular planes

Physical

Weight:	12 lb. (5.5 kg)
Dimensions (H, W, D):	9.63 in., 7.19 in., 7.66 in. 245 mm, 183 mm, 195 mm

Functional Description

MVC 112 function is illustrated in Figure 2 and described in the following paragraphs.

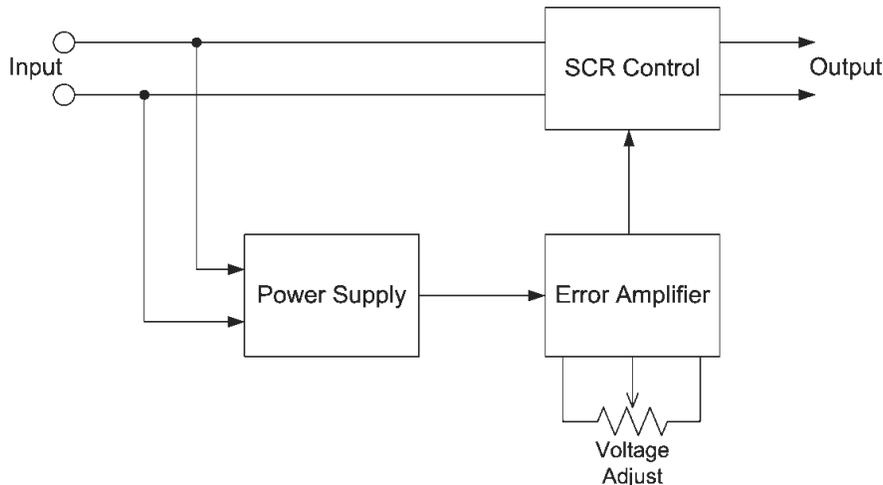


Figure 2. MVC 112 Function Block Diagram

The MVC 112 supplies dc power to the field through a phase-controlled SCR bridge. A nominal output (field) voltage of 32 Vdc, 63 Vdc, or 125 Vdc is selected by positioning a jumper wire on the MVC 112. For a nominal 125 Vdc output, apply 240 Vac power to the MVC 112. For a nominal 32 Vdc or 63 Vdc output, apply 120 Vac power. The level of voltage applied to the field is adjusted by the front-panel Manual Voltage Adjust control.

MVC 112 input power of 120 Vac or 240 Vac is selected by positioning a jumper wire. Input power frequency is also selected by a jumper. One position selects a range of 50 to 100 hertz and a second position selects a range of 100 to 200 hertz. Remove the jumper to select a range of 200 to 400 hertz.

During startup, an internal buildup circuit holds the SCR power bridge at maximum output. When the voltage builds to approximately 30 Vac, the buildup circuit relinquishes control to the Manual Voltage Adjust potentiometer.

The Auto/Off/Manual switch provides transfer control from the voltage regulator to the MVC 112 and vice versa. A freewheeling diode prevents arcing during transfers.

Mounting

The MVC 112 is intended for through-the-panel mounting in any location that complies with the environmental parameters listed in the *Specifications* section. It must be installed in an upright position for maximum cooling. Overall MVC 112 dimensions are shown in Figure 3. Panel cutting and drilling dimensions are illustrated in Figure 4. All dimensions are shown in inches with millimeters in parenthesis.

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Connections

Typical MVC 112 connections are shown in Figure 5. When making connections, 14 AWG or 12 AWG wire should be used. Torque applied to the terminal screws should not exceed 9 inch-pounds (1 newton meter).

Input Power Configuration

Input power voltage and frequency values are configured by positioning jumper wires on the MVC 112 terminal blocks.

A nominal input power voltage of 120 Vac or 240 Vac is selected by connecting a jumper across either the “Tap” and “120” terminals or the “Tap” and “240” terminals.

The MVC 112 is configured for an input power frequency within the range of 50 hertz to 100 hertz by connecting a jumper across the “50-100” and “Com” terminals. A frequency range of 100 hertz to 200 hertz is selected by connecting a jumper across the “100-200” and “Com” terminals. For a frequency within the range of 200 hertz to 400 hertz, no jumper is connected.

Field Output Configuration

A nominal output (field) voltage of 32 Vdc, 63 Vdc, or 125 Vdc is selected through connection of a jumper wire across the “Com” and “32”, “63”, or “125” terminals.

External Potentiometer Connections

If a remote potentiometer will be used for control of the MVC 112 output, the wires of the internal potentiometer must be disconnected from terminals 14, 15, and 16. Then, the remote potentiometer is connected with the potentiometer wiper arm connected at terminal 15. A 10 k Ω , 1 watt potentiometer (Basler P/N 21565) should be used.

Operation

Warning!

When the MVC 112 Auto/Off/Manual switch is placed in the Manual or Off position, some voltage regulator terminals remain connected to the generator and present a potential shock hazard.

With the Auto/Off/Manual switch in the Manual position, the voltage regulator is removed from the circuit and the generator output voltage is manually controlled by the Manual Voltage Adjust control. The Auto position enables automatic control of the generator output with the voltage regulator. Complete excitation shutdown occurs when the switch is placed in the Off position.

Startup

The following steps are provided as a guide for generator startup with the MVC 112.

1. Start the prime mover and adjust the Manual Voltage Adjust control to the minimum (fully counterclockwise) position.
2. Place the Auto/Off/Manual switch in the Manual position. Allow the generator terminal voltage to build. Note that the generator voltage may be unstable (hunting) if the Manual Voltage Adjust control is set below 30 Vac.
3. Use the Manual Voltage Adjust control to slowly increase the generator terminal voltage until it reaches the desired level.

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Maintenance and Troubleshooting

No preventative maintenance is required other than periodic inspections to ensure that the MVC 112 is free of accumulations of dirt and moisture. Verify that all connections are clean, tight, and free of corrosion.

Operational Test Procedure

Proper MVC 112 operation can be verified with the following procedure if faulty operation is suspected. A voltage regulator is not required for MVC 112 testing.

1. Connect the MVC 112 as shown in Figure 6. Place the field voltage jumper in the 125 Vdc position (across terminals “Com” and “125”). Place the input frequency jumper in the appropriate position for the applied input power.
2. Adjust the Manual Voltage Adjust control fully counterclockwise and apply 120 Vac power to the MVC 112.
3. Slowly rotate the Manual Voltage Adjust control clockwise and observe that the brightness of the light bulb increases proportionally until reaching full brightness.
4. Rotate the Manual Voltage Adjust control fully counterclockwise and remove the 120 Vac input power.
5. Place the field voltage jumper in the 63 Vdc position (across terminals “Com” and “63”).
6. Slowly rotate the Manual Voltage Adjust control clockwise and observe that the brightness of the light bulb increases proportionally until reaching only half the brightness obtained in step 3.
7. Rotate the Manual Voltage Adjust control fully counterclockwise and remove the 120 Vac input power.
8. Place the field voltage jumper in the 32 Vdc position (across terminals “Com” and “32”).
9. Slowly rotate the Manual Voltage Adjust control clockwise and observe that the brightness of the light bulb increases proportionally until reaching half the brightness obtained in step 6.

Storage

This device contains long-life aluminum electrolytic capacitors. For devices that are not in service (spares in storage), the life of these capacitors can be maximized by energizing the device for 30 minutes once per year.

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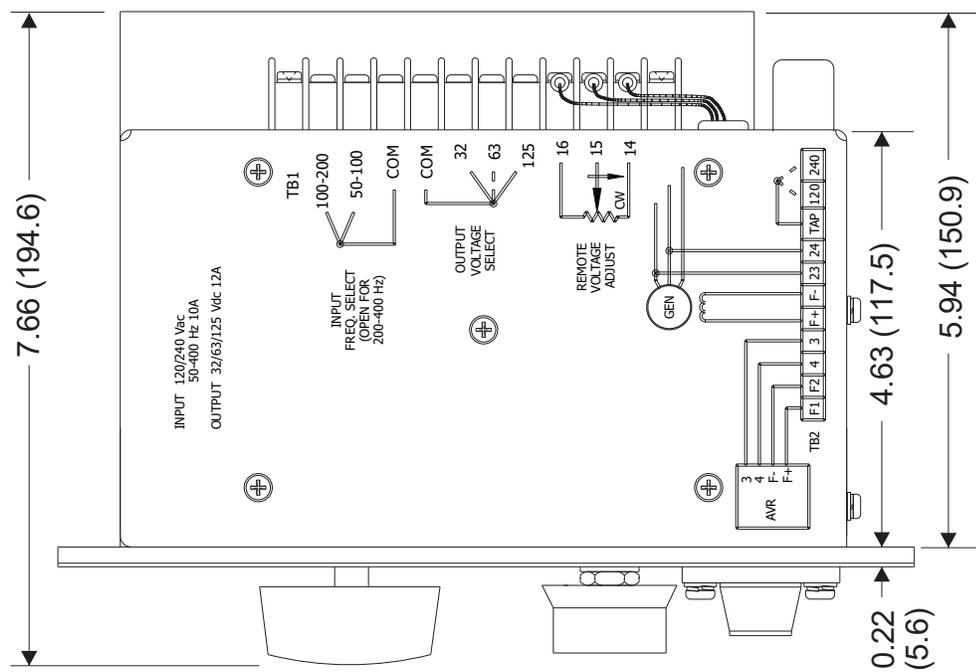
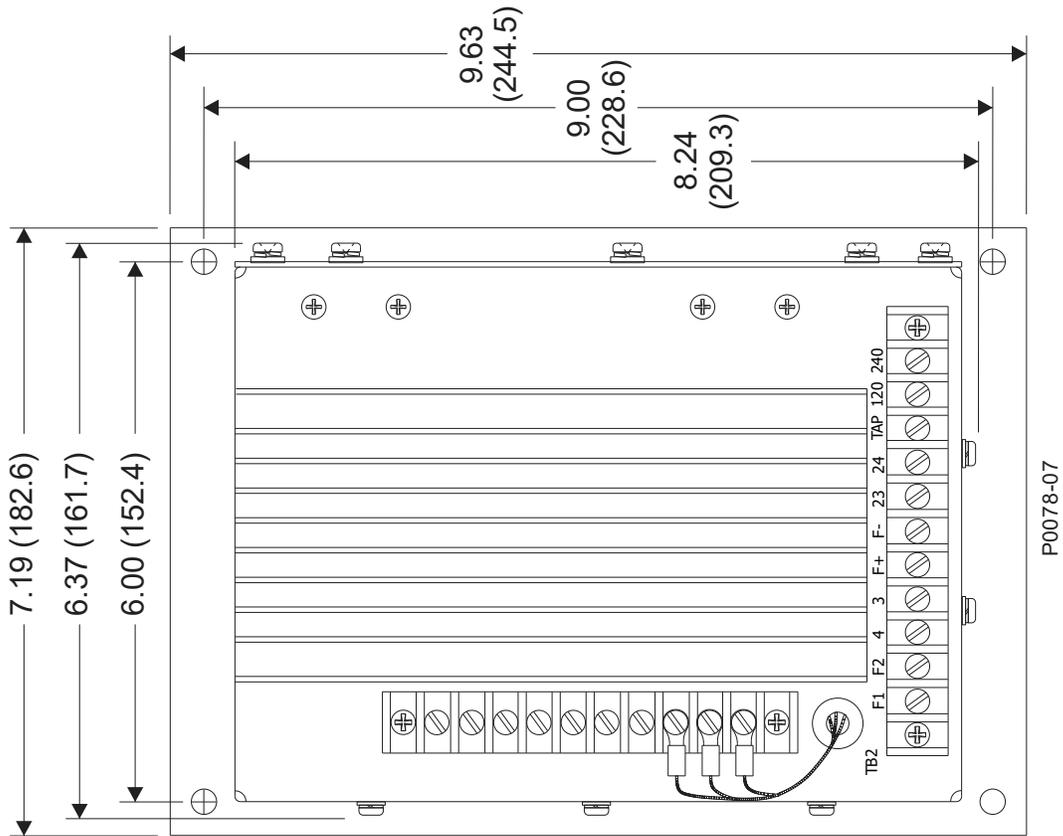


Figure 3. MVC 112 Outline Dimensions

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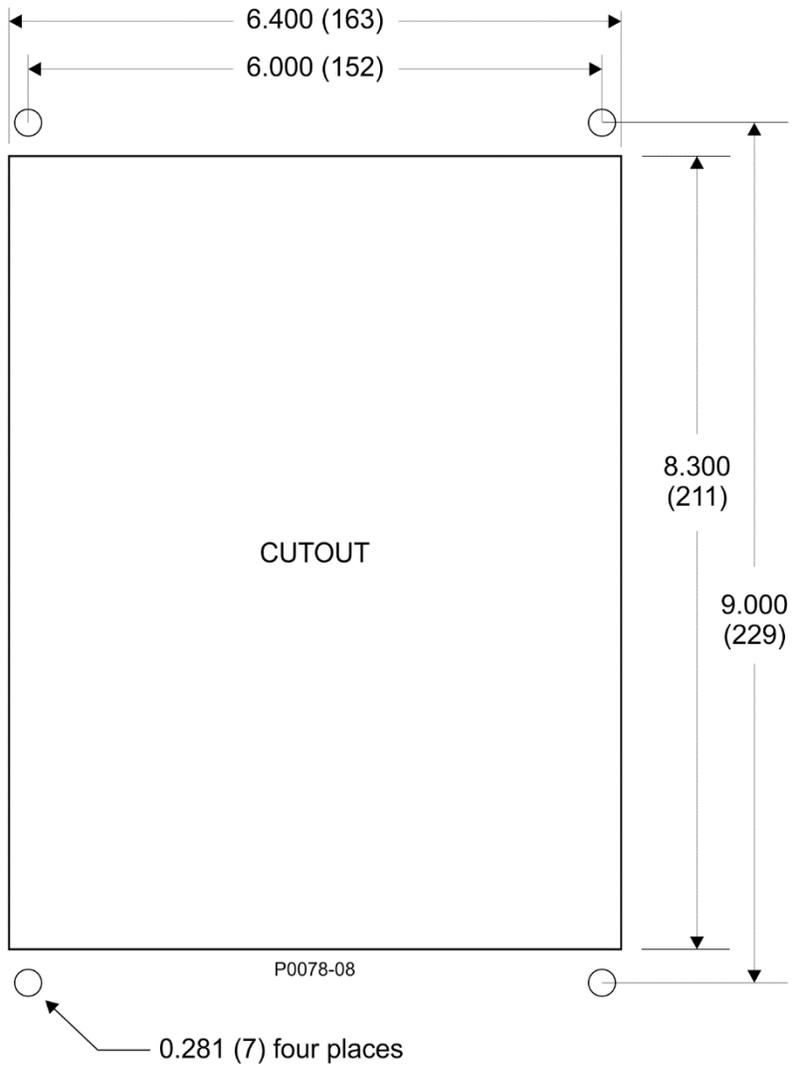
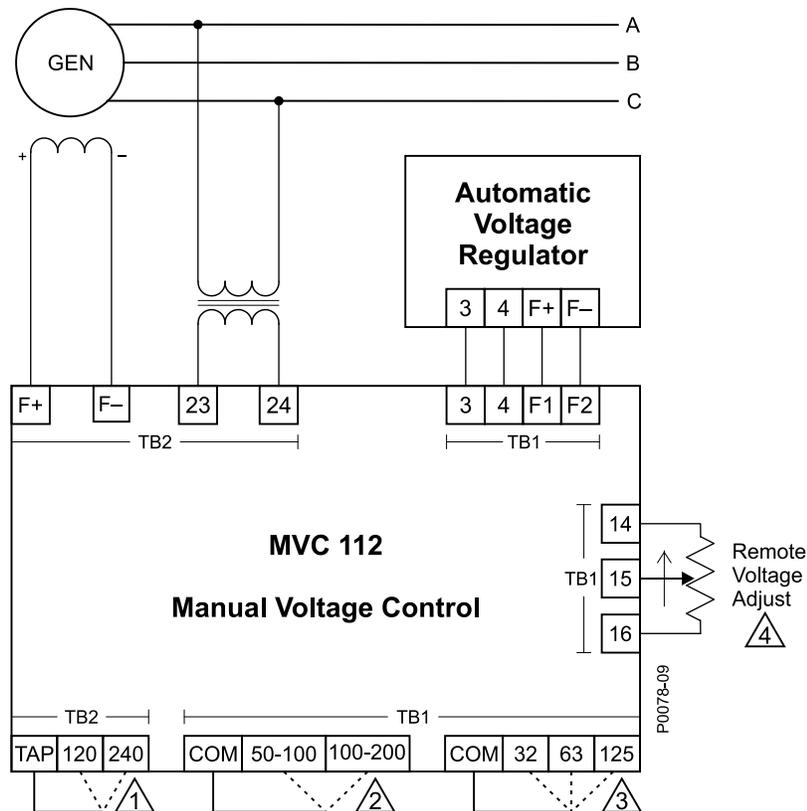


Figure 4. MVC 112 Panel Cutting and Drilling Diagram

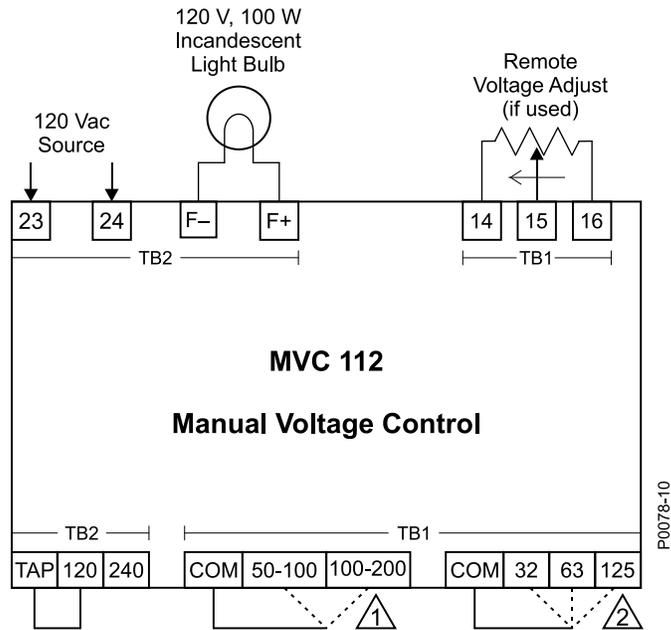
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- ⚠️ 1 Position jumper for nominal input voltage of 120 Vac or 240 Vac.
- ⚠️ 2 Position jumper for input power frequency range of 50 to 100 Hz or 100 to 200 Hz. Remove jumper for 200 to 400 Hz frequency range.
- ⚠️ 3 Position jumper for output (field) voltage of 32 Vdc, 63 Vdc, or 125 Vdc.
- ⚠️ 4 Optional 10 k Ω , 2 W potentiometer for remote manual voltage adjustment. When remote potentiometer is used, the wires from the MVC 112's internal potentiometer must be disconnected from terminals TB1-14, 15, and 16.

Figure 5. Typical MVC 112 Connections

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- ⚠️ 1 Configure the input frequency jumper for frequency of the voltage applied at terminals TB2-23 and 24.
- ⚠️ 2 Configure the field voltage jumper according to the directions in the *Operational Test Procedure*.

Figure 6. MVC 112 Operational Test Connections



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