

**300XAC** MODULAR AC POWER SOURCES



For the following models: 310XAC, 320XAC, 340XAC, 360XAC

# **SAFETY**CHECKLIST

KEEP unqualified/unauthorized personnel away from test area

**ARRANGE** test stations in a safe and orderly manner

**NEVER** touch products or connections during a test

**STOP** the test first in the event of a problem

- BE SURE to use the appropriate AWG for your input and output cabling
- TURN OFF the output when making any connections to the load

WARNING: THIS GUIDE WAS CREATED FOR OPERATORS HAVING SOME FAMILIARITY WITH AC POWER SOURCES AND HIGH VOLTAGE/HIGH CURRENT TESTING APPLICATIONS. AN AC POWER SOURCE PRODUCES VOLTAGES AND CURRENTS THAT CAN CAUSE HARMFUL OR FATAL ELECTRIC SHOCK. TO PREVENT ACCIDENTAL INJURY OR DEATH, THESE SAFETY PROCEDURES MUST BE STRICTLY OBSERVED WHEN HANDLING AND USING AN AC POWER SOURCE.

# FRONTPANELCONTROLS



- POWER SWITCH: Rocker style power switch with International ON (I) and OFF (0) markings.
- 2. GRAPHIC LCD: 240 x 64 monographic LCD.
- **3. SOFT KEYS:** Multi-functional selection keys used to select parameters, select screens, and edit parameters.
- 4. NUMERIC KEYPAD: Keys used to enter numeric data.
- 5. DELETE KEY: Used to delete text characters and numeric data.
- ROTARY KNOB: Used to adjust the voltage/frequency output in MANUAL Mode or DC Mode.
- 7. LOCK KEY: Used to lock out the front panel.
- 8. LOCK LED: When lit, this LED indicates the instruments front panel is locked.
- TEST/RESET KEY: Used to turn ON/OFF output voltage, or used to reset the instrument in the event of a failure condition.
- **10. TEST/RESET LED:** When lit, this LED indicates output is active, or when blinking indicates the instrument is in a failure condition.

# **BACK**PANELCONTROLS



- SYNC OUTPUT CONNECTOR: Provides the capability to monitor a 5 VDC output signal.
- REMOTE OUTPUT CONNECTOR: Provides output to monitor PASS, FAIL, Test-In-Process via relay contact closures.
- AUTOMATED INTERFACE CARD: Interface card used to control, program, and capture data.
- **4.** LINKING CARD (OPT. 8): Provides input and output communication ports for operating multiple instruments in parallel and polyphase modes.

**4a. Interface Input:** Connector used to attach the instrument to a master power source. Connecting the interface cable to this port automatically designates the instrument as a slave unit.

**4b.** Interface Output: Connector used to attach the instrument to a slave power source. Connecting the interface cable to this port automatically designates the instrument as a master unless an interface cable is also connected to the Interface Input port (in this case the instrument is automatically configured as a slave).

- 5. INPUT TERMINAL POWER BLOCK: Provides input power to the instrument. Models 310XAC and 320XAC require 90-264 VAC 1Ø, 47-63 Hz.
  - **5a.** G: Earth ground (chassis) connection.
  - **5b.** N: Neutral input screw terminal.
  - **5c.** L: Line input screw terminal.
- 5. OUTPUT TERMINAL POWER BLOCK: Provides output power to the DUT.
  - **6a.** Ns: Neutral sense screw terminal.
  - **6b.** N: Neutral output screw terminal.
  - **6c. G:** Earth ground (chassis) connection.
  - **6d.** L: Line output screw terminal.
  - **6e.** Ls: Line voltage sense screw terminal.

# **BACK**PANELCONTROLS



- INPUT TERMINAL POWER BLOCK: provides input power to the instrument. Model 340XAC requires 180-284 VAC 1Ø, 47-63 Hz.
  - 7a. L: Line input screw terminal.
  - **7b.** N: Neutral input screw terminal.
  - **7c. G:** Earth ground (chassis) connection.
- 8. OUTPUT TERMINAL POWER BLOCK: Provides output power to the DUT.
  - 8a. N: Neutral output screw terminal.
  - **8b.** G: Earth ground (chassis) connection.
  - **8c.** L: Line output screw terminal.
- EXTERNAL SENSE OUTPUT TERMINAL BLOCK: Provides screw terminals for external voltage sense leads.

9a. L: Line voltage sense screw terminal.

**9b.** N: Neutral voltage sense screw terminal.

# **BACK**PANEL**CONTROLS**



- INPUT TERMINAL POWER BLOCK: Provides input power to the instrument. Model 360XAC requires 180-264 VAC 1Ø, 180-264 VAC 3Ø or 312-457 VAC 3Ø at 47-63 Hz.
- 1 . OUTPUT TERMINAL POWER BLOCK: Provides output power to the DUT.
  - **1 a. N:** Neutral output screw terminal.
  - **1 1 b.** G: Earth ground (chassis) connection.
  - **11c.** L: Line output screw terminal.
- 12. EXTERNAL SENSE OUTPUT TERMINAL BLOCK: Provides screw terminals for external voltage sense leads.
  - **12a.** L: Line voltage sense screw terminal.
  - 1 2b: N: Neutral voltage sense screw terminal.

# **CHANGING**TEST**MODES**

The 300XAC includes two test modes that change the way in which the AC power source operates. PROGRAM Mode allows the operator to configure and run a test using steps and memory locations within the AC power source's menu. PROGRAM Mode is designed for advanced testing applications. MANUAL Mode doesn't utilize steps and memories, allowing the operator to quickly run a test with basic test parameters.

Turn the POWER switch to ON. From the Set screen press the "<more>" soft key and press the "System" soft key in the next screen.

In the System Parameters Menu, you can use the up or down arrow soft keys to highlight the AUTO RUN parameter. To change the AUTO RUN parameter, press the "Edit" soft key.

In the next screen, the AUTO RUN parameter will be highlighted. Press the "Change" soft key to toggle the highlighted parameter between PROGRAM and MANUAL mode. Press the "Enter" soft key to save changes made and then press the "Exit" soft key two times to return to the Set screen.

When the AUTO RUN parameter in the System Parameters menu is set to PROGRAM mode, the Set screen will be displayed as follows: (See Figure 1)



(Figure 1. Set Screen)

When the AUTO RUN parameter in the System Parameters is set to the MANUAL mode the Set screen will be displayed as follows: (See Figure 2)



(Figure 2. Set Screen)

# **CONSTANT**CURRENT**MODE**

#### USING THE 300XAC IN CONSTANT CURRENT MODE

#### 1) Turn ON the OC FOLD parameter.

From the Set screen press the "<more>" soft key and press the "System" soft key in the next screen.

In the System Parameters Menu, you can use the up or down arrow soft keys to highlight the "OC FOLD" parameter. To change the "OC FOLD" parameter, press the "Edit" soft key.

In the next screen, the "OC FOLD" parameter will be highlighted. Press the "Change" soft key to set the highlighted parameter to ON. Press the "Enter" soft key to save changes. Press the "Exit" soft key two times to return to the Set screen.

#### Program a current Hi-Limit, which represents the constant current you will provide to the load.

From the Set screen press the "Edit" soft key.

In the next screen, the Edit Parameters Menu, you can use the up and down arrow soft keys to highlight the "A Hi-Lmt" parameter. To change the "A Hi-Lmt" parameter, press the "Edit" soft key.

In the next screen, the "A Hi-Lmt" parameter will be highlighted. Using the Numeric Keypad enter the desired current limit. Press the "Enter" soft key to save changes and then press the "Exit" soft key one time to return to the Edit Parameters Menu.

#### 3) Program the voltage.

From the Edit Parameters Menu, use the up or down arrow soft keys to highlight the "Voltage" parameter. To change the "Voltage" parameter, press the "Edit" soft key.

In the next screen, the "Voltage" parameter will be highlighted. Using the numeric keypad, enter the voltage value. The voltage should be set higher than the nominal load voltage. This allows the current to adjust to the Hi-Limit value. After you enter the voltage, press the "Enter" soft key and then press the "Exit" soft key two times to return to the Set screen.

(Option 8 Linking Card Required)

IMPORTANT: BEFORE YOU BEGIN MAKING CONNECTIONS, YOU MUST ENSURE THAT THE POWER SWITCH ON THE 300XAC INSTRUMENT IS IN THE OFF POSITION.

#### PARALLEL MODE (1Ø2W)

In Parallel Mode, two (2) or three (3) instruments may be connected together in parallel, to increase the total current output of the system.

#### Linking two 300XAC sources:

Only one linking cable is needed. Connect the linking cable from the output connector labeled "Link Output" of one 300XAC source's linking card to the input connector labeled "Link Input" of the second 300XAC source's linking card. (See Figure 3)

#### Linking three 300XAC sources:

Take a second linking cable and connect it from the second 300XAC source's output connector labeled "Link Output" on the linking card to the input connector labeled "Link Input on the third 300XAC source's linking card. (See Figure 3)



(Figure 3.)

In Parallel Mode, each instruments' LINE output must be connected together at the load. If you are linking two sources there will be two line connections. If you are linking three sources there will be three line connections. (See Figure 4)

Also, each instruments' NEUTRAL output must be connected together at a load. If you are linking two sources there will be two neutral connections. If you are linking three sources there will be three neutral connections. (See Figure 4)



(Figure 4)

Once all the linking cables and conductor connections have been made, you can power up each individual 300XAC via the Power Switch on the front panel. Upon power up, the 300XAC will go through an initialization screen to verify that the additional sources are interconnected via the linking cable. If there is a proper connection, a message will appear acknowledging that additional 300XAC sources are linked and prompting the user to enable the additional sources.

### **FUNCTION**MODE

The FUNCTION mode changes the output voltage configuration.

Power up all instruments. From the Set screen press the "<more>" soft key and in the next screen press the "System" soft key.

In the System Parameters Menu, you can use the up or down arrow soft keys to highlight the FUNCTION parameter.

When the FUNCTION parameter is highlighted, press the "Edit" soft key and use the "Change" soft key to select the FUNCTION mode to "PARALLEL".

To save changes made, press the "Enter" soft key and then press the "Exit" soft key two times to get back to the Set screen.

(Option 8 Linking Card Required)

IMPORTANT: BEFORE YOU BEGIN MAKING CONNECTIONS, YOU MUST SENSURE THAT THE POWER SWITCH ON THE 300XAC INSTRUMENT IS IN THE OFF POSITION.

#### POLYPHASE OUTPUT MODE (1Ø3W)

In Polyphase Mode, two (2) or three (3) instruments connected together may be used to increase the total voltage output of the system, or change the output configuration from 1Ø to 3Ø. If two (2) instruments are interconnected 1Ø3W mode is available. This mode allows the operator to increase the output voltage to up to 600 VAC by configuring the two sources to output voltage at 180 degrees apart

You will only use one linking cable between the two 300XAC sources. Connect the linking cable from the output connector labeled "Link Output" of one 300XAC source's linking card to the input connector labeled "Link Input" of the second 300XAC source's linking card. (See Figure 5)

In the configuration below, the operator must connect the NEUTRALS of both instruments together and utilize both LINE outputs to achieve full voltage. (See Figure 5)



Once all the linking cables and conductor connections have been made, you can power up each individual 300XAC via the Power Switch on the front panel. Upon power up, the 300XAC will go through an initialization screen to verify that the additional sources are interconnected via the linking cable. If there is a proper connection, a message will appear acknowledging that additional 300XAC sources are linked and prompting the user to enable the additional sources.

# FUNCTIONMODE

The FUNCTION mode changes the output voltage configuration.

Power up all instruments. From the Set screen press the "<more>" soft key and in the next screen press the "System" soft key.

In the System Parameters Menu, you can use the up or down arrow soft keys to highlight the FUNCTION parameter.

When the FUNCTION parameter is highlighted, press the "Edit" soft key and use the "Change" soft key to select the FUNCTION mode to "1@3W".

To save changes made, press the "Enter" soft key and then press the "Exit" soft key two times to get back to the Set screen.

(Option 8 Linking Card Required)

IMPORTANT: BEFORE YOU BEGIN MAKING CONNECTIONS, YOU MUST ENSURE THAT THE POWER SWITCH ON THE 300XAC INSTRUMENT IS IN THE OFF POSITION.

#### POLYPHASE OUTPUT MODE (3Ø4W)

If three (3) instruments are interconnected 3Ø4W mode is available. This mode allows the operator to configure the instruments for three phase operation. Each phase will output voltage 120 degrees apart.

You will be using two linking cables between the three 300XAC sources. Connect the linking cable from the output connector labeled "Link Ouput" of one 300XAC source's linking card to the input connector labeled "Link Input" of the second 300XAC source's linking card.

Now, take a second linking cable and connect it from the second 300XAC source's output connector labeled "Link Output" on the linking card to the input connector labeled "Link Input" on the third 300XAC source's linking card. (See Figure 6)

In the configuration below, the operator must connect the NEUTRALS of all sources together at the load and utilize the LINE outputs to achieve full voltage. (See Figure 6)



Once all the linking cables and conductor connections have been made, you can power up each individual 300XAC via the Power Switch on the front panel. Upon power up, the 300XAC will go through an initialization screen to verify that the additional sources are interconnected via the linking cable. If there is a proper connection, a message will appear acknowledging that additional 300XAC sources are linked and prompting the user to enable the additional sources. (continued on back page)

## **FUNCTION**MODE

The FUNCTION mode changes the output voltage configuration.

Power up all instruments. From the Set screen press the "<more>" soft key and in the next screen press the "System" soft key.

In the System Parameters Menu, you can use the up or down arrow soft keys to highlight the FUNCTION parameter.

When the FUNCTION parameter is highlighted, press the "Edit" soft key and use the "Change" soft key to select the FUNCTION mode to "3Ø4W".

To save changes made, press the "Enter" soft key and then press the "Exit" soft key two times to get back to the Set screen.

# VIEWING TESTRESULTS

From the Set screen, press the "Results" soft key to view the results. The screen will look as follows:

Pass		J ~
Settings 100.0V	Results 100.0V	Page 🔨
60.0Hz 0W	ÊŎĴŎĦz Q.QW	Page 🗸
9.00A 0.0Ap	0.000A 0.0Ap	Exit

(Figure 7. Results Screen)

If you have multiple steps linked together, you will have to use the Up and Down arrow soft keys in order to toggle through each step to review the results.

Press the "Exit" soft key to move back to the set screen.