KEPCO®
THE POWER SUPPLIER™

BOP 1000W QUICK REFERENCE GUIDE

Once the power supply is installed (see full Technical Manual), this guide is an aid that briefly outlines a simple approach to accomplishing common tasks, with the appropriate Technical Manual paragraph references for more details. All instructions start from the power-up screen (press [F5] from most submenus to return to power-up screen). Many setup functions can be password protected - see UTILITY below for instructions.

UTILITY

How do I access a password-protected menu? Enter first character of password using **ADJUST** control or keypad (use multiple presses of the keys for letters or symbols: [0] (space), [1] (+, –, /), [2] (ABC), [3] (DEF), [4] (GHI), [5] (JKL), [6] (MNO). [7] (PQRS), [8] (TUV), [9] (WXYZ). [→] to enter next character, [F1] to verify. If incorrect, press **CLEAR** and repeat (see PAR. 3.2.4.4).

How do I use the keypad? STANDBY sets output on/off (STANDBY indicator lit when output off), **MODE** selects voltage mode or current mode, arrow keys highlight selections, numbers enter values and multiple presses can enter alphanumeric characters, **+/–** sets sign, **CLEAR** sets numeric values to zero, clears alphanumerics, **RESET** is equivalent to power-up cycle, **ENTER** applies settings to output and saves changes, **HELP** is context sensitive, keep pressing for more, [F1] through [F5] functions are defined by graphic box to the left (see PAR. 3.2.1).

How do I use the ADJUST control? Adjusts value of highlighted digit, fine adjustment (least significant digit) if held in while adjusting. If output is on, directly controls output (pressing **ENTER** not required). Scrolls through all alphanumeric characters for password.

How do I turn the beep on or off? [F3] , highlight Key Press Beep, [F1], highlight On, Error only or Off, then [F4]. [F5] to exit or [F4] to save for power-up (see PAR. 3.2.5.2).

How do I set the display background to black or white? [F3], higlight Background, [F1], highlight Black or White, then [F4]. [F5] to exit or [F4] to save for power-up (see PAR. 3.2.5.1). If [F4] not available, see NOTE to PAR. 3.2.5).

How do I adjust the Display contrast? [F3], [F3], then [F3] when contrast is OK. [←] or [→] for fine adjustment. [F5] to exit or [F4] to save for power-up (see PAR. 3.2.5.1). If [F4] not available, see NOTE to PAR. 3.2.5).

How do I choose between graphical meters or time line graphs?: [F3], Higlight Graphic Display, [F1], highlight Meters or the appropriate Graph time, then [F4]. [F5] to exit or [F4] to save for power-up (see PAR. 3.2.5.3).

CONTROLLING THE OUTPUT USING THE FRONT PANEL (LOCAL)

How do I apply a voltage or current to the load? If output is on (STANDBY indicator not lit) press **STANDBY** to turn output off (STANDBY indicator lit). Use **MODE** to select Voltage or Current mode, use [↑] or [↓] to highlight main channel, use keypad to set value, then press **ENTER.** Highlight protect channel(s) and use keypad to set value. then press **ENTER**. Press **STANDBY** to turn output on and apply programmed settings to load (see PAR. 3.3.3).

How do I change between a single value or two different values for positive and negative protection limit? [F5], highlight Max/Min Settings, [F1], Higlight Protect Entry, [F1], highlight Bipolar or Independent, then [F4]. [F5] to exit or [F4] to save for power-up (see PAR. 3.3.3.1).

How can I prevent voltage (in voltage mode) or current (in current mode) from being set beyond a predetermined level? [F5], highlight Max/Min Settings, [F1]. Higlight +Voltage Max, -Voltage Min, +Current Max or -Current Min as desired, [F1], use keypad to change value, then [F4]. [F5] to exit or [F4] to save for power-up (see PAR. 3.3.4).

How do I prevent protection limit from being set beyond a predetermined level? [F5], highlight Max/Min Settings, [F1], Higlight +C Protect Max, -C Protect Min, +V Protect Max or -V Protect Min as desired, [F1], use keypad to change value, then [F4]. [F5] to exit or [F4] to save for power-up (see PAR. 3.3.4.2).

What happens when the protect setting is reached? Limit channel controls power supply, display shows the message CPRO-TECT (current protection in voltage mode) VPROTECT (voltage protection in current mode) or PROTECT (external analog protection).

POWER SUPPLY SETUP

How do I configure for resistive, active or battery type load? [F5], highlight Load Type, [F1], highlight Active, Resistive, or Battery then [F4]. Press [F5] to exit or [F4] to save for power-up (see PAR. 3.3.6).

How do I control whether the output is on or off upon *RST? [F5], [F1], highlight *RST sets Output, [F1], highlight On or Off, then [F4]. Press [F5] to exit or [F4] to save for power-up (see PAR. 3.5.3.1.3).

How do I control what condition the unit is in upon power up. [F5], highlight Power Up Settings, [F1], highlight parameter, [F1], highlight desired power-up state, then [F4]. Repeat for all parameters, then [F5] to exit or [F4] to save for power-up (see PAR. 3.3.7).

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CONTROLLING THE OUTPUT USING EXTERNAL (ANALOG) SIGNALS (REMOTE)

How do I control the mode using an external signal? [F4], highlight External Mode, [F1], highlight Enable, [F4], then [F5] to apply changes and exit. This setting is not saved for power-up (PAR. 3.4.2). Select mode by applying either logic 1 or open circuit for voltage, or logic 0 or short circuit for current, to pin 2 referenced to pin 9 of the Analog I/O port (PAR. 3.4.2).

How do I use an analog voltage to control the output (main channel)? [F4], highlight Reference input, [F1], highlight External then [F4], then [F5] to apply changes and exit . This setting is not saved for power-up. Apply ±10V signal to pin 11 referenced to pin 4 of the Analog I/O port to control active channel (voltage or current) (PAR. 3.4.3).

How do I use an analog voltage to control the protection channel? [F4], highlight Protection Limit, [F1], highlight External then [F4], then [F5] to apply changes and exit (not saved for power-up). Apply +1V to +10V signal to the following pins referenced to pin 12 of the Analog I/O port to control limit channel from 10% to full scale: –Current Protect: pin 5, +Current Protect: pin 13, –Voltage Protect: pin 6, +Voltage Protect: pin 14 (PAR. 3.4.4).

How do I choose between local, digital and analog control of the output? The unit normally powers up in Local mode. Sending a command via RS 232 or GPIB interfaces automatically puts the unit into Remote mode. Press [F1] to restore Local mode. If an analog voltage is controlling the output (see above), local control of the main channel is disabled and digital commands are not accepted.

How do I use the BOP as an amplifier? See above to control the main channel and/or protection channel using analog signals. The nominal (inherent) voltage gain of each model is calculated by $(G_{NOM-V}) = E_{Onom} / E_{REF}$. and nominal (inherent) current gain is $(G_{NOM-I}) = I_{Onom} / E_{REF}$ where $E_{REF} = 10V$ (see PAR. 3.4.3.1).

How do I control the gain of the BOP when used as an amplifier? [F4], highlight Reference input, [F1], highlight ExtlRefLevl then [F4], then [F5] to apply changes and exit (not saved for power-up). Apply ±10V signal to pin 11 referenced to pin 4 of the Analog I/O port. Main channel setting (SET) determines gain (G) by G = SET/10 (PAR. 3.4.3.2).

CONTROLLING THE OUTPUT USING DIGITAL INTERFACE (REMOTE)

How do I use the GPIB interface to control the power supply? [F5], [F1] to view current GPBI address. To change GPIB address, highlight GPIB address, [F1], use keypad to enter new address then [F4]. Press [F5] to exit or [F4] to save for power-up (see PAR. 3.5.3.1).

How do I use the RS 232 interface to control the power supply? [F5], [F1] to view. To change Baud Rate, XON/XOFF or Prompt if needed: highlight Baud Rate, XON/XOFF or Prompt setting, [F1], highlight desired selection, then [F4]. When complete, [F5] to exit or [F4] to save for power-up (see PAR. 3.5.3.2).

How do I change between SCPI and CIIL Data Format? [F5], [F1], to view. To change, highlight Data Format setting, [F1], highlight SCPI or CIIL then [F4]. [F5] to exit or [F4] to save for power-up. (PAR. 3.5.3.1.2)

How do I change the Device Clear from SCPI to MATE compliant? [F5], [F1], to view. To change, highlight Device Clear setting, [F1], highlight SCPI or MATE then [F4]. [F5] to exit or [F4] to save for power-up. (PAR. 3.5.3.1.2)

FEATURES

How do I save the power supply settings for future use? [F1], highlight **Empty** location, [F1]. The power supply settings (Mode, type and values for Main Channel Reference and Protection, and output on/off) are displayed. To save a different setting than that displayed, highlight the parameter, [F1] highlight the selection or enter value using keypad, then [F4]. [F5] to exit or [F4] to save for power-up. (PAR. 3.3.8)

How do I modify saved power supply settings for future use? [F1], highlight desired location, [F1]. The power supply settings (Mode, Main Channel Reference and value, Protection type and values and output on/off) are displayed. To change a setting, highlight the parameter, [F1] highlight the selection or enter value using keypad, then [F4]. [F5] to exit or [F4] to save for power-up. (PAR. 3.3.8)

How do I recall previously saved power supply settings? [F1], highlight desired location. [F2] to execute stored settings or [F1] to see details, then [F2] to program settings. (PAR. 3.3.8)

How do I view or execute a waveform? [F2] highlight Waveform name, [F1] to view, press **STANDBY** to turn output on, [F4] to execute. [F5] to stop waveform execution. (PAR. 3.3.9)

How do I create a waveform? Use arrow keys to highlight Empty, [F2], [F1]. Enter name using ADJUST or keypad (multiple presses for letters) and [→], then [F4]. To change Mode highlight selection, [F1] highlight Voltage or Current, [F4] to save for power-up. To change protection, highlight setting, [F1], enter new setting using keypad, [F4]. To change count, highlight setting, [F1], enter new setting using keypad, [F4]. Define first segment (Type, Frequency, Amplitude (p-p) and Offset) by highlighting parameter, [F1], highlight desired setting or use keypad to enter value, then [F4]. Highlight segment or End of Segments, [F2] to insert next segment prior to highlight or [F3] to erase segment. Define new segment or re-edit existing segment in the same way (including start/stop angle for sine or triangle), then [F4]. (PAR. 3.3.9.8) See above to execute waveform.

How do I calibrate the unit? [F5], highlight Calibration, [F1], then proceed per screen prompts.

How do I configure unipolar operation? Set either + or – Maximum to zero as follows: [F5], highlight Max/Min Settings, [F1]. Higlight +Voltage Max, -Voltage Min, +Current Max or -Current Min as desired, [F1], press **CLEAR** to set to zero, then [F4]. [F5] to exit or [F4] to save for power-up (see PAR. 3.3.4).

Can I further customize the configuration? Yes, contact Kepco for further information.