

Sun's Hand Held Programmer (HHP) provides a convenient method to access configuration settings in the 790 Series Embedded Digital Proportional Valve Amplifiers. Simply plug the appropriate Cable Adapter into the Programmer and connect the infrared-end into the amplifier slot and it is ready to use. Only four buttons are required to view and change parameters. An additional button turns the Programmer unit on and off. The Programmer is lightweight and compact for easy handling.

- Easy to read, high-contrast screen
- Intuitive, clearly marked buttons
- Powered by one 9 Volt battery
- Auto shutoff to extend battery life
- Low battery power warning
- Removable communication cable adapter
- Screen contrast can be easily adjusted
- Small size fits in a shirt pocket
- On board memory for storage of one amplifier setup (Version 2.0 or newer firmware only)



### Operating Specifications:

Supply Voltage	9 VDC (requires standard 9 Volt battery/format EN22, 6LR61, 6AM6)
Weight	5.7 oz. (162 grams) with battery
Dimensions	3 in. W x 5 in. H x 1.0 in. D (76 mm W x 127 mm H x 25 mm D)
Operating Temperature	32° F to 158° F (0° C to 70° C)

## Operation

Operation of Sun's Hand Held Programmer requires a Cable Adapter for the Embedded Amplifier to be configured.

To operate the Sun Programmer, plug the 9 pin connector of the Cable Adapter into the Programmer. Connect the other end of the Cable Adapter to the Embedded Amplifier. Press the yellow power button on the HHP to turn it on. The Programmer can be connected or disconnected while power is supplied to the embedded amplifier. The embedded amplifier must be powered on to make changes to its configuration. When the Programmer powers up it will display a title message.

All functions of the Programmer are controlled with the following buttons: Power, Lock, Unlock, Adjust Up, and Adjust Down. The specific functions of the buttons are as follows:

### **Power (Yellow I|O)**



The power button is used to turn the Programmer on and off. Briefly pressing the button when off will turn the unit on. Pressing and holding the button when power is on will turn the Programmer off.

### **Lock (Red Padlock)**



Locks the current parameter setting. When locked, Adjust Up and Adjust Down control movement through the parameter list.

### **Unlock (Green Open Padlock)**



Unlocks the current parameter setting. When unlocked, Adjust Up and Adjust Down change the current parameter value.

### **Adjust Up (Blue with White Up Arrow)**



Adjust Up will move up through a parameter list if the control is locked. If the control is unlocked, Adjust Up will increase the value of the current parameter.

### **Adjust Down (Blue with White Down Arrow)**



Adjust Down will move down through a parameter list if the control is locked. If the control is unlocked, Adjust Down will decrease the value of the current parameter.

## HHP Settings

The display contrast can be adjusted in a similar fashion to Amplifier parameters. The display contrast is factory set for optimum performance at room temperature. Operation at an unusually high or low temperature may require contrast adjustment.

To enter the HHP setup area, press the lock button four times without pressing other keys. The display will return to the title message which was shown when power was first supplied. The Up and Down arrow buttons can now be used to view and change the following Programmer setting:

### **CONTRAST**

The display contrast can be adjusted to any value from 1 to 63 with 1 being lightest and 63 being darkest. The default value is 22.

**CAUTION!** – *Setting the Contrast too high or too low can make the display unreadable.*

### **BACK LIGHT (Version 2.0 and newer)**

The display can be adjusted to any value from 1 to 63 with 1 being the lowest setting and 63 being the brightest. The default setting is 20. Adjusting brightness may prove useful in low lighting conditions.

### **ON BOARD MEMORY (Version 2.0 and newer)**

At the read or write prompt, press the green Unlock key to change the parameter setting. Use either the Adjust Up or Down keys to select read or write. Read copies the amplifier settings onto the Hand Held Programmer's on board memory. Write transfers a copy of the parameters stored in the on board memory to the amplifier. Pressing the red Lock button completes the read or write operation. It is not possible to view the parameters stored in the on board memory without transferring them to an amplifier. It is only possible to store the parameters for one setup.

Low battery warning value is 6.5 V. This is not adjustable.

To exit the HHP settings area and return to the Amplifier parameters, toggle through to the parameter that reads "EXIT HHP SETUP?". Press the Unlock key and then the Up or Down button to change to 'Yes'. When the Lock button is pressed, the HHP will return to the Amplifier settings.

## Ordering Information

Sun's Hand Held Programmer P/N: **991-700**

Cable Adapter P/N: **991-702**