

MXP90S Series Microfocus Instruction Manual

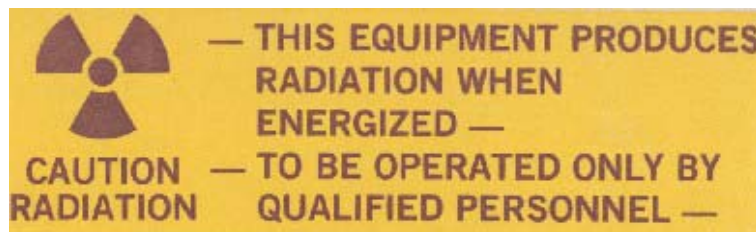
Manufactured by
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Congratulations on the purchase of your MXP90S microfocus x-ray system. Please take the time to read this instruction manual for operation and safety precautions. The MXP90S microfocus is a self-contained x-ray generator, consisting of a custom-built x-ray tube, a high-voltage multiplier and an integrated low-voltage controller. It may be operated from 20 to 90kV at a maximum tube current of 200uA.

NOTE: A remote control unit must be constructed by the customer in order for the x-ray system to function completely, see page 5 for schematic diagram and parts list.

Your MXP90S microfocus system consists of the following:

- X-Ray Source
- Interconnect Cable; HD15P conn on one end, flying leads on other. (5 ft long)
- 24VDC Power Cable; 2-pin conn on one end, flying leads on other (5 ft long)



Safety Notifications:

In order to prevent personal injury and avoid damaging the x-ray source, follow all procedures, cautions and warnings posted on the equipment and in this manual.

- To prevent death from an electrical hazard due to high voltages present in this equipment, use extreme caution when handling or operating this equipment.
- Do not disassemble the x-ray source. Do not move or disconnect the x-ray source while it is operating.
- To prevent an electrical hazard, ensure that all components of the x-ray source are grounded.
- To ensure correct operation, ensure that only trained service personnel repair the x-ray source.
- To prevent exposure to x-ray radiation, do not operate this equipment until it is completely installed in a properly configured environment with safety interlock.

Before Operating the X-Ray System:

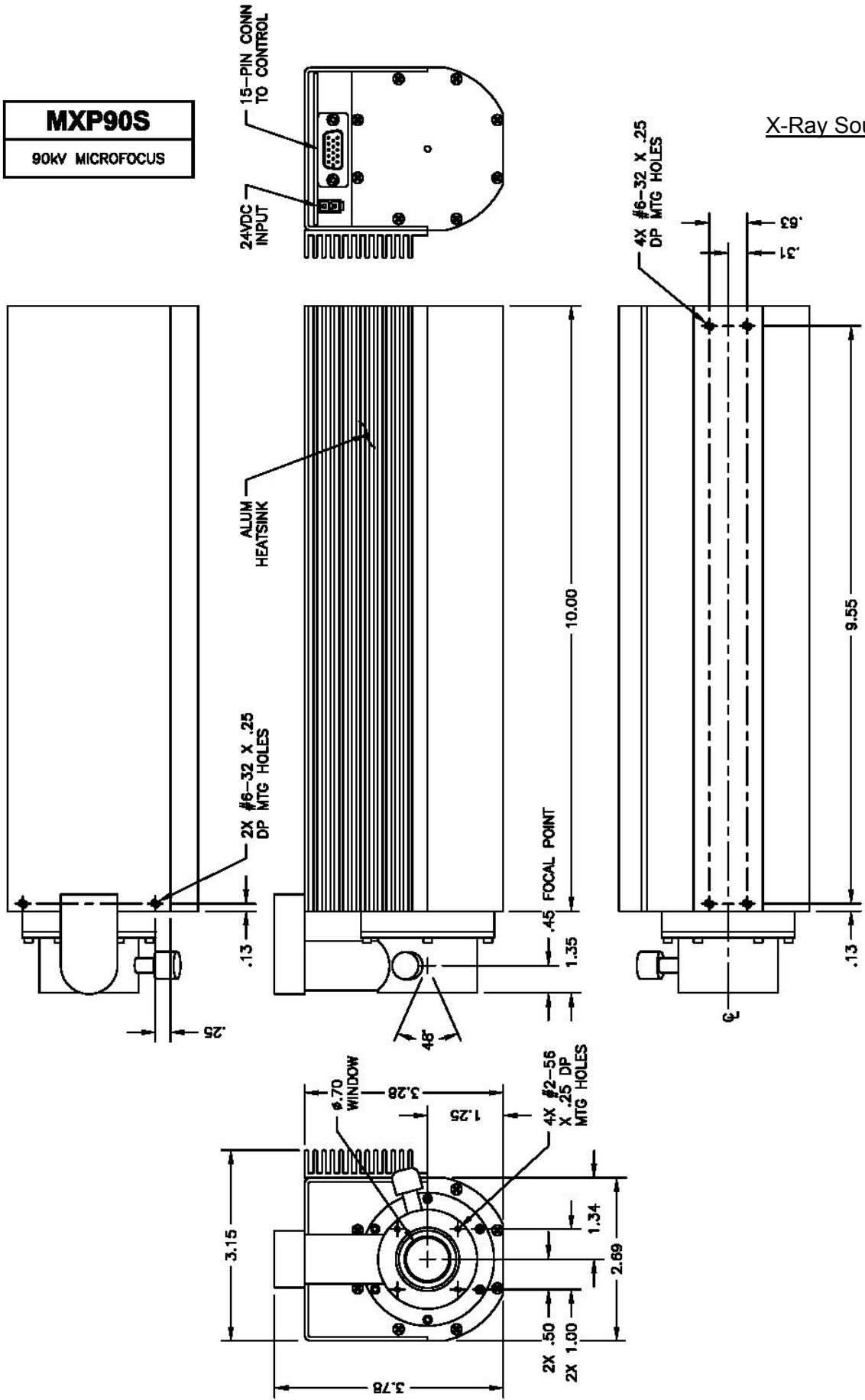
1. Inspect the x-ray source and all other components for damage.
2. Install the x-ray source in a lead lined enclosure with safety interlock switch on door or chamber per schematic diagram on page 5.
3. Install the interconnect cable into back of controller from the customer-built control unit.
4. Install the 24VDC power cable into back of controller from an appropriate power supply.
5. Be sure to keep the packing box, in case the unit has to be returned to the factory.

CAUTION! Do not attempt to take apart the controller or x-ray source. These items can only be serviced at the factory and would void the warranty.

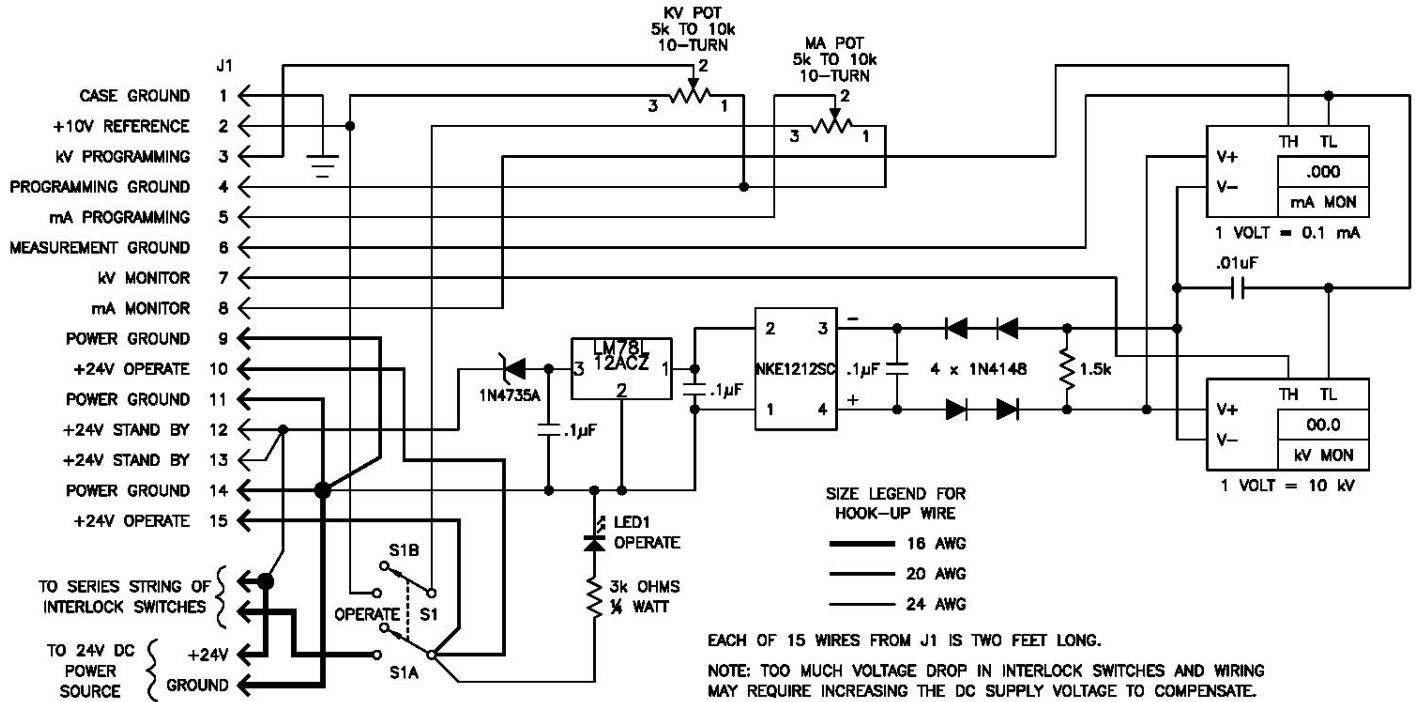
How to Operate:

1. Before activating the system, turn off the enable switch and turn down both kV and mA pots to the least program value position on the remote control unit.
2. With the x-ray source in a lead-lined enclosure and safety interlock engaged, turn on the enable switch to the remote control unit. The system is now activated and may be adjusted to the desired settings.
3. Turn up the kV to the required level and then, adjust the mA to the required level.
4. Since this source emits x-rays from a dispenser cathode, it may take 20 seconds for the mA to reach the initial value. Afterwards, further adjustments of the mA should be instantaneous.

MXP90S
90KV MICROFOCUS



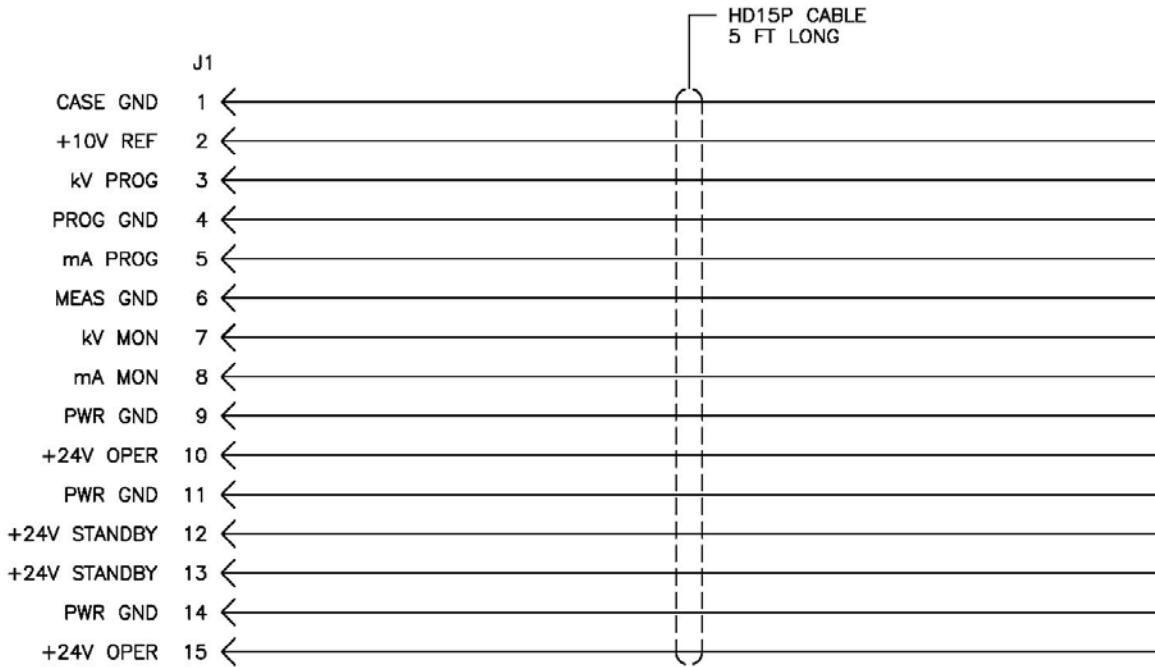
Schematic for Remote Control Unit:



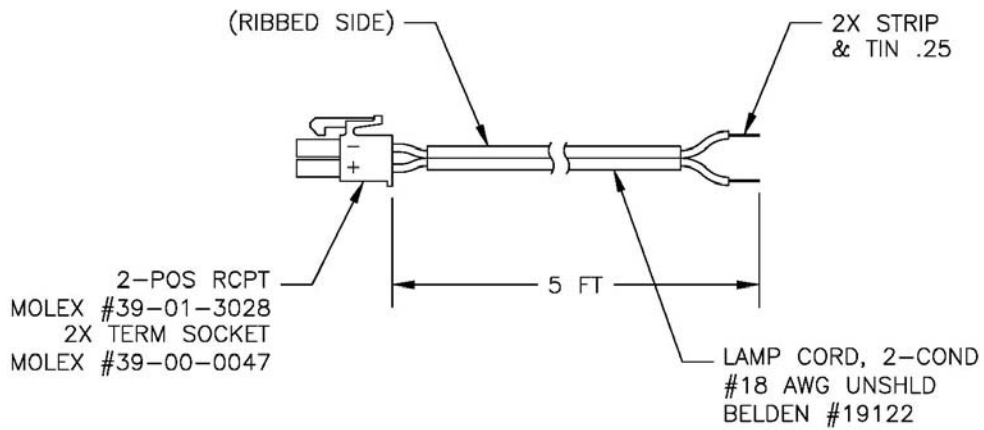
Parts List for Remote Control Unit:

Part No	Description	Qty
Martel #QM-140V	Meter, LCD, 4-Digit	2
Bourns #3590S-1-103L	Pot, WW, 10K, 10-Turn	2
Radio Shack #275-0652	Switch, Paddle, 6A, DPDT	1
Chicago #5100H1	LED, Red, 1/4" Hole, Panel Mount	1
--	Knob, 1/4" Shaft, 3/4" Dia	2
--	Diode, 1N4735A	1
--	Diode, 1N4148	4
--	Cap, 0.01uF, 50V, Mylar	1
--	Cap, 0.1uF, 50V, Mylar	3
--	Res, 3K, 1/4W, 5%, CF	1
--	Res, 1.5K, 1/4W, 5%, CF	1
LM78L12ACZ	IC, Volt Reg, 12V, 0.1A	1
NKE1212SC	IC, DC Conv, 12V, 1W	1
--	Perf Board, .100 Cen, Cut to 1" x 1"	1

HD15P Interconnect Cable:



24VDC Power Cable:



Specifications:

kV Range	20 – 90 kV
mA Range	0-200 μ A
Total Power	10 Watts
Focal Spot Size	8 Microns
Window Material	0.010" Beryllium
Target Material	Tungsten
Cone of X-Ray Beam	48 Degrees
Focus to Sample Distance	0.45"
Power Supply Input	24 VDC, 2 Amps
Source Control	Analog
Duty Cycle	Continuous
Weight	6 Lbs
Connections	J1: Control Unit (HD15S) J3: 24VDC Input (Molex #39-30-1020)
Warranty	13 Months

Warranty:

This product is warranted for a period of 13 months from the date of delivery. The warranty is limited to repair or replacement, free of charge within the warranty period.

This product has been thoroughly tested and checked, prior to shipment to ensure the performance meets the required specifications. However, this does not guarantee the product integrity, so appropriate safety measures must be taken to avoid possible problems that might occur during normal use.

Should any failure be found in the workmanship or materials used in manufacture or if any damage caused by shipment, notify our sales office immediately. This warranty does not cover secondary breakdowns, damages, losses or accidents to equipment, materials or human beings that were caused or induced by this product.

This warranty does not cover breakdowns, losses or damages, which were caused by the operating environment, negligent or reshipping, shifting, dropping or unauthorized modifications by the customer. Also this warranty does not cover effects from equipment being used simultaneously with this product as well as accidents and/or disasters; natural or man-made.

The window of the x-ray tube is made from a thin Beryllium foil. Do not apply force to the window surface or scratch it. If the window cracks or damaged, the x-ray tube will not operate normally. The warranty for the x-ray source does not cover any damage to the window caused by external force or shock.

Repairs:

If a failure is found in the x-ray source or you suspect a problem, contact us with the specific symptom and detailed description of the trouble. This will help reduce the cost and time required for repairing and adjusting the product you returned.

Before sending the unit for repairs, contact us for a RMA number. Carefully pack the x-ray source in a heavy-padded shipping box and send to Source 1 X-Ray, 1610 Dell Avenue, Unit I, Campbell, CA 95008 USA. Our phone number is (408) 866-6020 and our fax number is (408) 866-6040. You may also e-mail us at info@source1xray.com.

While every effort will be made to repair the returned product as soon as possible, the repair of a product that was purchased later may require additional time. Please note that repair of a product using parts not in current production or a product that has been modified or severely damaged by the customer may be refused and un-repairable.