Watlow Temperature Controller Installation



February 2017

Version 1.00



AEP Linac van Hennaertweg 9 2952 CA Alblasserdam The Netherlands

The Watlow Temperature Controller Replaces the Barber Coleman Temperature Controller that has been discontinued. These instructions are intended to assist with the installation of the new Watlow Temperature Controller. The wiring is similar to the Barber Coleman Temperature Controller; a schematic has been included.

1) Emergency Off the Linac and verify power is off.

Linac

- 2) Disconnect and remove Barber Coleman controller and remove the RTD from the well.
- 3) Slide the new Watlow Controller into the old Barber Coleman retainer.



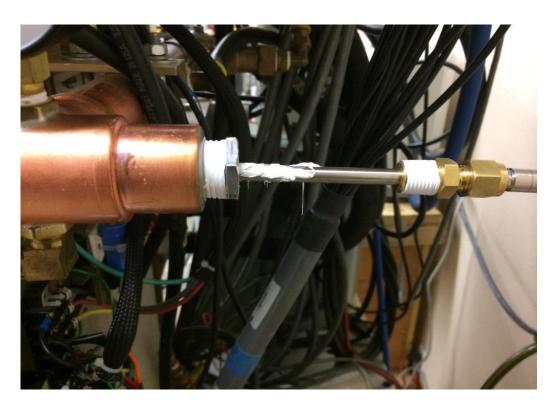


Linac

= >

AEP Linac van Hennaertweg 9 2952 CA Alblasserdam The Netherlands

- 4) Slide the brass bushing provided over the RTD.
- 5) Apply thermal transfer paste to the new RTD and install in the well. Tighten the brass bushing to hold RTD in place.







AEP Linac van Hennaertweg 9 2952 CA Alblasserdam The Netherlands

6) **RTD Wire Termination**:

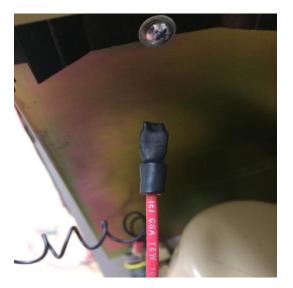
Terminate the two red wires from the RTD on the terminal strip located under the controller to RTD-. Terminate the white wire from the RTD to RTD+located on the terminal strip.



7) Three-way Valve Actuator Wire Termination:

These are three wires located on the Three-way Valve Actuator that were lifted when old Barber Coleman Actuator was removed. The red wire is no longer used, but will still be hot wire with 24VDC. To prevent a short circuit, cut off the lug and cover the end of the wire with the heat shrink provided. Terminate the yellow wire on the controller terminal strip labeled CONT+. Terminate the blue wire on CONT-.







AEP Linac van Hennaertweg 9 2952 CA Alblasserdam The Netherlands

8) Linac Readout Connection:

Terminate the black and white wire from A-6 Temp. controller cable to the terminal strip located under the Watlow Temperature Controller. Black wire to COM and the white wire to ISA.





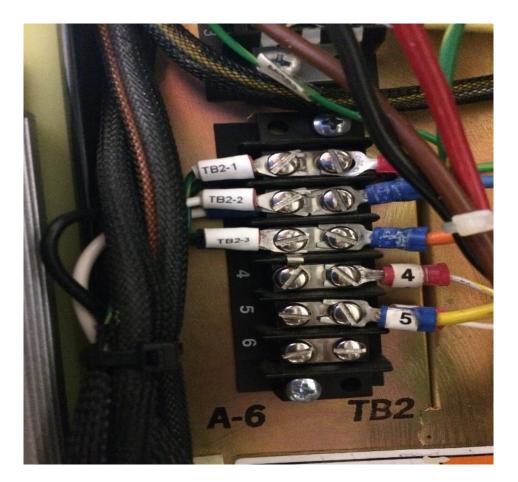
AEP Linac van Hennaertweg 9 2952 CA Alblasserdam The Netherlands

9) Watlow Controller Power Termination:

There is a power cable from the controller that will be terminated on TB2. This is the AC power to the controller.

TB2-1 Green TB2-2 White

TB2-3 Black





AEP Linac van Hennaertweg 9 2952 CA Alblasserdam The Netherlands

10) Power up the Linac and verify the Watlow Controller is on. Verify the set point is 40 degrees. The temperature set point can be changed by pressing the up and down arrows on the controller.





AEP Linac van Hennaertweg 9 2952 CA Alblasserdam The Netherlands

11) At the console go to Service Mode. Verify that the Gain and Offset for the H2O Meter Calibration is per this chart. Calibrate the Meter Calibration if needed





AEP Linac van Hennaertweg 9 2952 CA Alblasserdam The Netherlands

E D/R R SYM T SYM MODE INVALIB NO 0 -0.02 -0.01 ENERGY NO NODE NO 40 STANDBY ACC IN NO ACCESSORY							
UP IN ANALOG ME	LK/TRIG/LT DISPLAY MOTOR CALIB UNITS	QUIT					
	8BUNCH RD16GUN I24AFC DIFF9BUNCH TR17SOL I25MNL FREQ10ANGLE RD18SOL II26ACL VAC11ANGLE TR19TARGET I27GUN VAC12POS RDL20GUN V28BMAG VAC13POS TRN21BMAG V29KLY VAC14TRIM22RF DRIVE30H20 TEMP15PFN VOLT23HUPS I310N0 TEST	0.00 8.25 0.11 .08 .00					
N 180.3 Y 40.3 X 36.3	a Selection. Then Press ENTER. deg COLL Y1 20.1 cm COUCH VRT 115.9 cm cm COLL Y2 20.1 cm COUCH LNG 32.6 cm cm COLL X1 16.5 cm COUCH LAT 99.9 cm deg E COLL X2 20.0 cm COUCH RTN 184.8 deg						



AEP Linac van Hennaertweg 9 2952 CA Alblasserdam The Netherlands

	0 -0.02	T SYM -0.01 NDBY	ENERGY	INVALID No Node O Accessor	Y	
SET UP INTLEZTRIGZLT DISPLAY NOTOR CALIB UTILS						
5.12	METER CA	LIBRATIO	DN		AFC DIFF	
12.16 -12.22 14.63	Hz	O TEMP		40.33	MNL EREQ ACL VAC GUN VAC	
-15.24	and the second se		to 99.99)	10.00	BMAG VAC	
24.58	Offset	(-32767	to 32767)	1	KLY VAC H20 TEMP 4	
-0.01	PFN VOLT	0.07	HVPS I	34.10	ANA TEST	
and the second se	or Press 2 deg 2 cm	Enter to COLL Y1 COLL Y2		COUCH VI	RT 115.9 cm	

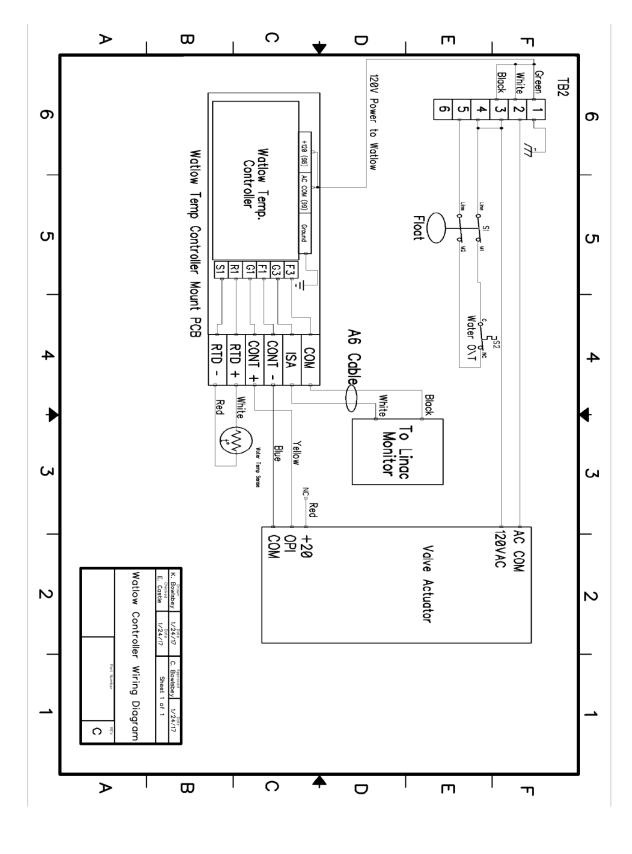
Clinac	Gain of 10
	Offset of 1
Clinac Silhouette	Gain of 15.25
	Offset of -50

12) Mode up and test run. Verify the meter screen and Watlow Controller track consistently.

Note: The over temperature function of the Clinac was not changed and it is still monitored by the temperature switch on the Clinac.



AEP Linac van Hennaertweg 9 2952 CA Alblasserdam The Netherlands





AEP Linac van Hennaertweg 9 2952 CA Alblasserdam The Netherlands