



Blood Plasma Freezer With Master Controller

Follow-Up Procedures for Service Technician



IMPORTANT NOTICES

- The service technician should read the Blood Plasma I & O Manual prior to the follow up to become familiar with this control scheme.
- Wiring Schematics and the I & O Manual should be left with the Center Manager. If this literature is not available please call 1-800-684-8988 and we will gladly email or fax these documents to you upon request.
- It may be necessary that the Center be operational before the follow up visit is made. This will allow the technician to obtain an idea of how the freezer(s) are being utilized. (i.e. number of door opening per day, times the doors remain open, loading and unloading schedules, etc.)

The following set points are those that would be expected to be seen upon arrival. Various set points may need to be adjusted, depending on box usage described above. Please call into our Technical Service department if there are abnormal situations found.

The following are outputs only and may not be changed.

ro	RMTP	room temperature from TS3 (-50°F to +50°F, Default= - 45F)
E0	POSN	percentage the valve is open (0 to 99%)
SH	SUPH	actual superheat in COOL MODE (TS2-dE)
in	TSAT	Saturated temperature calculated from evaporator suction pressure Pr
oU	TOUT	evaporator suction outlet temperature from TS2
dE	DFTP	temperature read from the evaporator defrost termination sensor TS1
PC	PDCT	product temperature read from sensor TS4 (not used)
Pr	PRES	suction pressure read from the pressure transducer (-14.6 to 138.8PSIG)
dp	DPRS	Head pressure during COOL MODE; Suction Pressure during Defrost Mode Display Hexadecimal on two digit display, decimal PSIG on remote display.

The following are adjustable parameters.

CN	CMMD	The master/ slave, standalone, alternating mode. Standalone, Ao
SS	SHSP	superheat set point (2 to 20 °F). (SS = 10)
rS	RMSP	room temperature set point or cut-out (-50°F to +50°F, Default= - 45F)
dU	DFTM	maximum defrost duration (0 to 99 minutes). (dU = 20)
dS	DFSP	defrost termination temperature (35 to 99°F). (dS = 50)
dr	DRTM	drip time duration (0 to 15 minutes). (dr = 5)
nd	NMDF	number of defrosts per day (1 to 12). (nd = 4)
HA	HIAL	high temperature alarm set point (-40 to +83 °F). (HA = 0 then -30)
Ad	ALDL	temperature alarm delay (0 to 59 minutes). (Ad = 30)
LA	LOAL	low temperature alarm set point (-50 to -40 °F). (LA = -50)
oC	OFTM	minimum time the valve is close (0 to 15 minutes). (oC = 2)
rn	RNTM	minimum time the valve is open (0 to 15 minutes). (rn = 2)
rP	RNTP	cut-in temperature differential (0 to +25 °F). (rP = 05)
PS	MPSP	Maximum pressure set point (-4.6 to 105.4 PSIG). Default is 20 PSI
Pn	NPSP	Minimum pressure set point (-14.6 to 3 PSIG). Default is -14.6 PSI
HS	DPSP	Suction Pressure Set Point during defrost (0 to 50 PSIG). Default = 20
Ar	LGAD	Address of controller for remote data logging (0 to 15). (Ar = 00)
Fc	DGCF	Temps measured in Degrees C or Degrees F. Default = FA
FS	FDSP	Fan delay temperature set point (-55 to 83 deg F) -20°F
FN	FDTM	Maximum time to delay fans (0 – 59 Minutes) 5 min
PA	HPSP	high product temperature alarm set point (-40 to +83 °F). -30°F (not used)
PL	PTDL	Product temperature alarm delay (0-59 minutes). 15 min (not used)
AL	DIF2	If in alternating mode, number of deg above air set point to override and both controllers to go into cool mode (0-25 deg F). 5 °F

FOLLOW UP PROCEDURES

1. Check that the box temperature is within the normal operating range required by the Center. This is usually around -40°F.
2. At the control board, check the actual superheat seen at the evaporator. Please refer to the Blood Plasma I & O manual for details.
3. Inspect the evaporator for ice accumulation. It may be necessary to change the number of defrost per day (**nd**), defrost termination temperature (**dS**), or maximum defrost duration (**dU**).
4. If the Center manager has any issues with the time of day that defrosts are occurring, please use the hand held remote display to set the time so that this situation may be avoided. This will be discussed in detail later in this document.
5. Check both high and low pressure switch set points at the condensing unit. This should be done during the normal cooling mode.
6. Check the suction pressure **seen at the compressor** during a defrost cycle. A manual defrost may be initiated by holding PB1 on the control board for 7 seconds. The suction pressure should not exceed 25 psig during a defrost cycle. Adjustment to the Crankcase Pressure Regulator may be needed if high pressures are seen. Counter Clockwise (CCW) to lower the set point, Clockwise (CW) to raise the set point.
7. Check the compressor amperage during both defrosts and cooling cycles.
8. Check the oil level at the compressor during the cooling and defrost cycles. There is a yellow sticker next to the oil sight glass that will illustrate the proper oil levels. Add oil if needed.
9. If the Center Manager has issues with temperature swings during the off mode, adjust the cut in temperature differential set point (**rP**) accordingly.
10. The low pressure control is a vital part of this system during the defrost cycle. This should be calibrated upon start-up. If a short cycle situation is observed during defrost, low pressure control adjustments may be necessary.

CHANGING THE “TIME” SET POINT WITH THE REMOTE DISPLAY

As mentioned above, it may be necessary to set the time of day that the Center requires a defrost cycle. This is achieved via the remote display coupled with the master controller board. Once the remote display is plugged into the Master Controller at the Ethernet terminal, the “Time” setting in the control board may be adjusted. Press the “down” arrow key until the “TIME” parameter is shown on the remote display. See Photo 1 below.



PHOTO 1:

Once the “TIME” parameter is found, press the “enter” key and “down” arrow key simultaneously. This will allow the set point to be adjusted. See Photo 2 Below.



PHOTO 2:

The "TIME" programming will begin with the left most number value and may be change to either 0, 1, or 2. This numeric character will be blinking while it is being changed. Photo 2 was shot while the left most character was "blinking" out. After this has been established, press "ENTER" again to move to the next digit to the right. Adjust by pressing the "up" or "down" arrow. Again, press "ENTER" to move to the next digit to the right. Continue this procedure until the time desired is reached. Hold the "up" arrow and the "ENTER" key simultaneously to exit the TIME changing mode.

How to we know when the time desired is reached? Let's assume that the Center Manager would like to avoid a defrost cycle at 5:00 p.m. We must have first decided how many defrost per day we need at this location. We will assume that we want four defrost per day for this example. We know that if we have four defrost cycles per day, these occur every 6 hours. The time that is set with the remote display will depend upon what the current time of adjustment is. If it is 9:30 am currently, we could set the time on the control board to 00.00 and avoid a defrost cycle @ 5:00 p.m. How do we know?

This Master Controller will set and start the clock @ 9:30 a.m. to 00.00. Six hours later, a defrost cycle will occur. The actual time of defrost will then be 3:30 p.m. that afternoon. The next defrost cycle will occur another six hours later, or 9:30 p.m. We can see that we are avoiding defrost cycles during loading or unloading of the Plasma Box @ 5:00 p.m.



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