

<b>JTL FIRMWARE VARIATIONS</b>		<b>HP150 HP155</b>
<b>VERSION</b>	<b>DESCRIPTION</b>	<b>DATE</b>
v0.00.0	Original issue	Jun 2014
v0.00.1	Output range now in 0.1% intervals. Display error corrected. Start address for PROM check sum redefined. End address for PROM checksum corrected. Special cases added for initial power up (1 <sup>st</sup> minute) in both Phoenix and non Phoenix modes. Call to write NVRAM added on default write of unit nos and factory settings. Unsafe data timer initial value extended to 120 sec. Temperature difference items such as superheat, deadband, etc display on MU in Fahrenheit corrected. Start of time moved to Jan 1 <sup>st</sup> 2012 Manual mode presentation added. PI terms separated for subcritical and transcritical operation. Time constant scaling changed. Integrals initialized in Manual mode. Phoenix capability added for capability and fixture use. Not operational with current hardware. Number of alarm errors corrected.	Aug 2015
v0.00.2	Pressure setpoint and level ranges and defaults modified.	Mar 2016
v0.00.3	In subcritical mode the cooler pressure is controlled by the transcritical valve and the cooler exit subcooling by the cooler fans. Some ranges and defaults associated with transcritical operation changed. Output smoothing added.	Aug 2016
v0.00.4	HP155 introduced with 4-20mA output replacing 0-10V output for transcritical valve control. Liquid pressure transducer defaults to off.	Jan 2018
v0.00.5	Maximum and minimum fan speed settings added. Minimum exit temperature differential added. Fans can be stopped automatically when the transcritical valve is fully shut.	Apr 2018
v0.00.6	Error in setting of item 56, transcritical control time constant corrected. OAT multiplier and constants ranges extended. Adjusted ambient trigger level factor range modified. Fan speed reduction temperatures added on items 360 & 361.	Apr 2018