

XEV EX48 - Start-up Procedures

General Information

The XEV EX48 superheat controllers are factory pre-programmed to drive the EX4 thru EX8 valves in conjunction with the Emerson PT5-18M pressure transducer and ECN-N60 temperature sensor. The factory set parameters are:

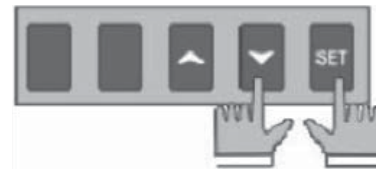
1. Refrigerant type: Fty = R-404A
2. Type of Valve: tEP = 1 (Emerson EX4,EX5,EX6 all have the same amount of steps)
3. Initial start up percentage: oPE = 50%
4. Start up function duration: SFd = 0 sec
5. Digital input d1s = OFF
6. Digital input d2s = ON
7. Superheat setpoint: 10F

Some parameters may need to be changed to work with your specific application. The following is what needs to be programmed into the controller:

8. Refrigerant type: Fty
9. Type of valve used : tEP
10. Initial start up percentage of valve open: oPE
11. Initial start up duration: SFd. The time period you want the valve to be at the start up percentage before regulating. Once time period has expired the valve will regulate based on the superheat you program.
12. Digital input types either d1s or d2s, these are the option to set based on how you tell the controller to start regulating. Either dry contacts, d1s or voltage signal 120/240V d2S. The wiring diagram indicates each type of option but only one can be used.
13. Superheat set point

Once the control is wired, when power is first applied, with the digital input open (no call for cooling) the letters nA and the Superheat value will flash back and forth. The valve will be in the closed position. When cooling is demanded and digital switch closes the superheat value will be displayed and the valve will regulate to maintain the superheat you entered on the controller. If you were to program a SFd time, then when cooling is demanded and the digital switch closes the letter StF (Start Function enabled) and the Superheat value will flash back and forth, the valve will move to the oPE position, when the time period SFd has been reached then the valve will regulate to the required Superheat value and the Superheat valve will be displayed.

To change the parameters numbered 1-7 above you must first enter the Pr1 menu.



- Press the SET + DOWN arrow keys for about 3 seconds.
- The device will display the first parameter in Pr1 menu, Fty (Type of refrigerant) if nothing is changed after 5 seconds the program will return to the Superheat value.
- Press the set key once and the type of refrigerant programmed in will be displayed, default is 404.
- Use the up and down key to scroll thru the different refrigerants in the program, once you see the one you want hit the set key again, the value you selected will flash then move on to the next parameter tEP (Type of valve).
- Press the set key once and the type of valve will display as number 1, the default, for EX4, 5 and 6.
- Use the up and down key to scroll thru to number 2 for the EX7 and number 3 for the EX8. Once selection is made press the set key once, the the next parameter will display oPE (start up opening percentage)
- oPE is the start up opening percentage that you want the valve to open up on start up. Setting can be adjusted from 0 to 100%. Press the set key once and the default setting will be displayed, 50%, use the up and down arrows again to change the value.
- Once you have your value press set again, then the next parameter will display SFd (start function duration) will be displayed.
- SFd (Start function duration) is the time period that you want the valve to be at the valve oPE (start up opening percentage) . After this time period the valve will regulate to maintain the superheat you entered.
- Use the up or down key to set the time, time is set in tenths of a minute from 0.0 to 42 minutes. Press the set key again and the value will flash and then tP1 will be displayed.

- tP1 is just a display of the temperature probe value, press the set button and you will see the current value. Press the set key again and PPr will display.
- PPr is the pressure transducer value, press the set key once and it will display the current valve, press the set key again and OPP will display.
- OPP (valve percentage open), this is the value of the valves current opening percentage, from 0% to 100%. Press the set key once and it will display the current position. Press the set key again and d1s will display.
- D1s is the digital switch that is a cooling demand option where a switch or dry contact is connected between terminal 13 and 15 on the controller. Press set key and the word OFF will display press set key again and D2s will display
- D2s is the digital switch that is a cooling demand option where either 120/240 v is applied to terminals 8 and 9 when cooling is demanded. Press the set key once and the word ON will display, this is the default option, if D1s is wanted then the following parameters will also have to be changed.
- Changing from D2s to D1s
 - Entering the Pr2 menu will allow access to the rest of the parameters.
 - Press the set key, the code PAS will display, then a blinking 0 - using the up or down key scroll up to 3, press set key then enter 2, press set, then 1 and finally press set again, the code Fty (Type of refrigerant) will display again.
- Next, if you have decided which digital input type to use, d2S is already programmed into the controller; this is the high voltage input 120/240V. If you want to use the d1S then the following parameters (Codes) need to be changed.
 - Continue using the up key and scroll to code i1F (Digit input 1 Function)
 - Press the set key, default rL will flash, using the up or down arrow change to CCL then press set; it will flash then move to d1d.
 - Use up and down arrow and move to code i2P (Digital input 2 polarity), press set, default CL will flash, using the up or down arrow and change to OP, press set, OP will flash then display i2F (Digital input 2 function)
 - Press set, default CCL will be displayed, use up and down arrow and change to rL, press set, rL will flash and display d2d.
- To exit the program either press the set and up arrow at the same time or wait 30 seconds without pressing any key.
- Last of all the superheat setting that you wish to have the controller regulate to. By pressing the set key this will display the current setting programmed into the controller.
- To modify this setting, press and hold the set key for 3 seconds the number will display with a flashing dot.
- Using the up or down arrow key change the superheat setting to what you need, then press set
- Table 1 below shows the different parameters (Codes), the min/max values and the defaults as reference.

Table 1

Code (What is displayed on controller)	Regulation (The function of this parameter)	Controller Setting			Parameter Level
		Min	Max'	Default	
Fty	Refrigeration types: (R404A,R507,R22,R134a,R407A,R410A, CO2)			R404A	Pr1
tEP	Valve type used: (1 = EX4,5,6) (2 = EX7) (3 = EX8)	1	10	1	Pr2
oPE	The percentage that you want valve to open on initial start-up (0 to 100%)	0 %	100%	50 %	Pr1
SFd	The time that you want your percentage of opening (oPE) to remain there, then the controller open/closes based on superheat selected (0.0 to 42 min: tens of a second)	0 sec	42 min	0 sec	Pr1
tp 1	This is a display function that by pressing set key will display the current temperature sensor value.				
PPr	This is a display function that by pressing set key will display the pressure transducer current evap pressure				
OPP	This is a display function that by pressing the set key will display the current opening position of the valve in percentage				
d 1 s	This indicates the status of the digital option that uses a dry contact or switch wired to terminals 13 and 15	OFF	ON	OFF	Pr1
d 2 s	This indicates the status of the digital option that uses 120/240v applied to terminals 8 and 9 thru a switch	OFF	ON	ON	Pr1
Pr2	This is the parameter to enter when you want to move on to the Pr2 menu				
These parameters below are used when switching from the d 2 s default to a d 1 s option					
i1P	(CL,OP) CL= activated when closed OP = activate when opened	CL	OP	CL	Pr2
i1F	(CCL,rL) CCL = cooling call rL = digital input activates relay	CCL	rL	rL	Pr2
i2P	(CL,OP) CL= activated when closed OP = activate when opened	CL	OP	CL	Pr2
i2F	(CCL,rL) CCL = cooling call rL = digital input activates relay	CCL	rL	CCL	Pr2

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