

INSTALLATION INSTRUCTIONS

GRUNDFOS MAGNA 3 VARIABLE SPEED PUMP WITH LOCHINVAR BOILERS FOR KNIGHTXL, FTXL, CREST, AND CREST HELLCAT

Installation and Setup Procedure

1. Refer to the installation manual provided by the pump manufacturer to install the pump. **NOTE:** The boiler **MUST** be installed in the Primary / Secondary piping configuration. A system supply sensor **MUST** be installed in the Primary (building) loop. Refer to the installation and operation manual provided by the boiler manufacturer to ensure the proper system piping configuration.
2. Reference FIG. 1 to connect wiring to the boiler's low voltage control board on the "Boiler Pump Out" terminal:
 - a) Connect the (+) wire from the boiler to "In" connection on the pump 0-10V wiring terminal.
 - b) Connect the (-) wire from the boiler to the ground terminal on the pump 0-10V wiring terminal.
3. Connect line voltage by supplying it directly to the pump.

NOTE: This pump is not powered by the boiler. It will have its own dedicated breaker and power supply.

For Knight and FTXL Models: Wire the boiler pump dry contacts located on the boiler's line voltage terminal directly to the Magna 3 start/stop connection.

For Crest and Lectrus Models: Wire a relay to the 115V boiler pump connections on the boiler's line voltage terminal. Connect the relay to the Magna 3 start/stop connection.

NOTE: The Magna 3 start/stop terminals have a small jumper installed. To install the wiring you must remove the jumper.

This method of line voltage supply allows the Pump screen to stay on even when the boiler is in Standby mode. For additional information always reference the "Wiring" section in the boiler installation and operation manual.

4. Reference Tables 1A, 1B, 1C, 1D, and 1E on this instruction sheet to determine the setpoint percentage of the pump.
5. Follow the procedure below to apply the pump setpoint:
 - a) From the pump Home screen use the arrow keys to select [Setpoint].
 - b) Select [OK] to go to the Setpoint screen.
 - c) Use the arrow keys to assign a setpoint based on the information provided in FIG. 2, on page 3.
 - d) Select [OK] to save the setting.
 - e) Select the [Home] button to return to the Home screen.
6. The pump is pre-programmed for 0-10V operation, but the boiler will require setup to control the variable speed pump. Follow the instructions for variable speed pump setup in the boiler installation manual.

Figure 1 Wiring Connections

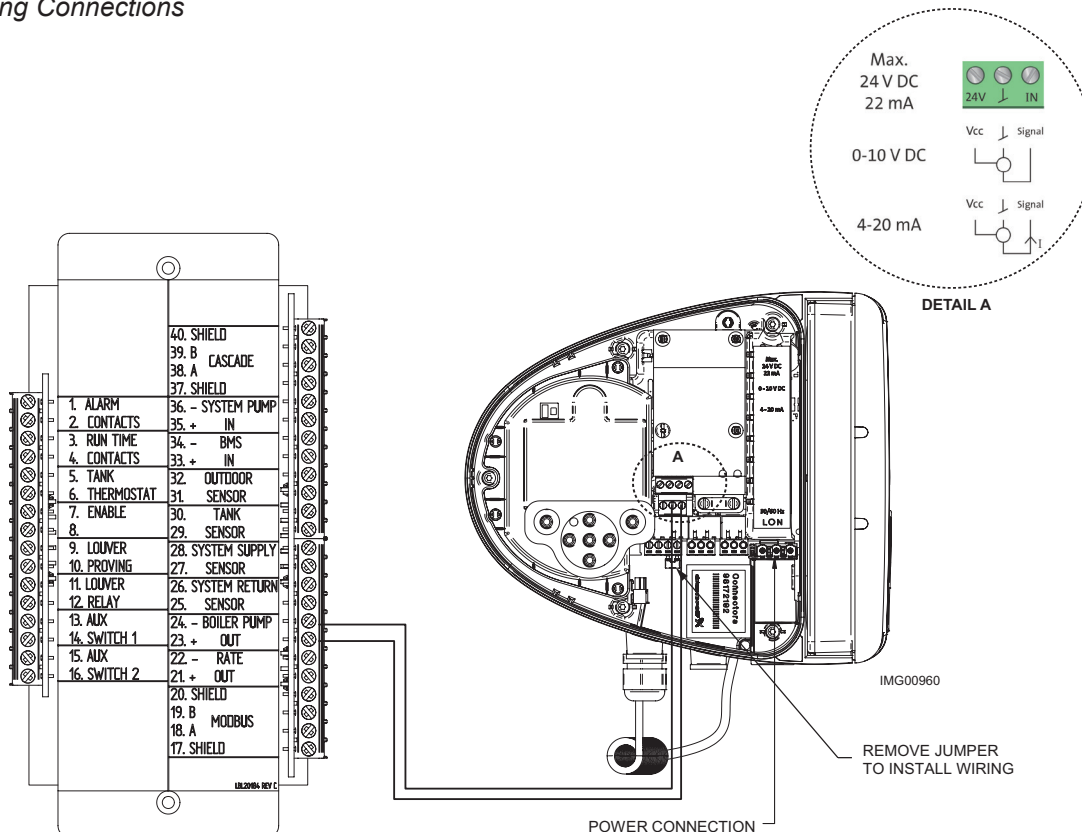


TABLE 1A - KNIGHT XL TEMPERATURE RISE APPLICATIONS						
Model	20°F			25°F		
	GPM	Magna 3	Setpoint (%)	GPM	Magna 3	Setpoint (%)
400	37	40-80	92%	30	40-80	75%
501	46	50-150	42%	37	50-150	83%
601	55	50-150	79%	44	50-150	67%
701	65	50-150	79%	52	50-150	64%
801	74	50-150	100%	60	50-150	69%

TABLE 1B - FTXL TEMPERATURE RISE APPLICATIONS									
Model	20°F			30°F			40°F		
	GPM	Magna 3	Setpoint (%)	GPM	Magna 3	Setpoint (%)	GPM	Magna 3	Setpoint (%)
400	38	40-80	54%	N/A			N/A		
500	48	40-80	68%	32	40-80	45%			
600	57	40-80	79%	38	40-80	53%	29	32-60	64%
725	69	40-80	88%	46	40-80	60%	34	40-80	46%
850	81	50-150	50%	55	40-80	70%	40	40-80	53%
1000	98	50-150	48%	65	40-80	67%	49	40-80	56%

TABLE 1C - CREST & CREST HELLCAT TEMPERATURE RISE APPLICATIONS													
Model	Boiler Connection Size	20°F				40°F				60°F			
		GPM	FT/HD	Magna 3	Setpoint	GPM	FT/HD	Magna 3	Setpoint	GPM	FT/HD	Magna 3	Setpoint
751	3"	72	6.1	50-150	44%	48*	3.6	40-80	55%	N/A			
1000 / 1001	3"	96	10.5	50-150	58%	48	6.6	40-80	63%				
1251	3"	120	12.6	50-150	67%	60	6.9	40-80	71%	40	4.5	40-80	52%
1500 / 1501	4"	144	13.5	50-150	72%	72	7.7	40-80	81%	48	6.0	40-80	62%
1751	4"	168	15.4	80-100	82%	84	8.5	50-150	51%	56	6.9	40-80	69%
2000 / 2001	4"	192	16.6	80-100	89%	96	8.7	50-150	55%	64	6.9	40-80	74%
2500 / 2501	4"	240	11.4	100-120	80%	120	6.2	50-150	58%	80	5.1	40-80	81%
3000 / 3001	4"	288	13.0	100-120	89%	144	5.2	50-150	65%	96	3.8	40-80	86%
3501	4"	224*	12.2	100-120	78%	168	6.8	50-150	72%	112	4.6	50-150	53%
4000 / 4001	4"	256*	14.0	100-120	87%	192	8.1	80-100	75%	128	5.4	50-150	59%
5000 / 5001	6"	Not Available				240	7.9	80-100	86%	160	5.6	80-100	62%
6000 / 6001	6"					288	8.7	100-120	87%	192	4.3	80-100	68%

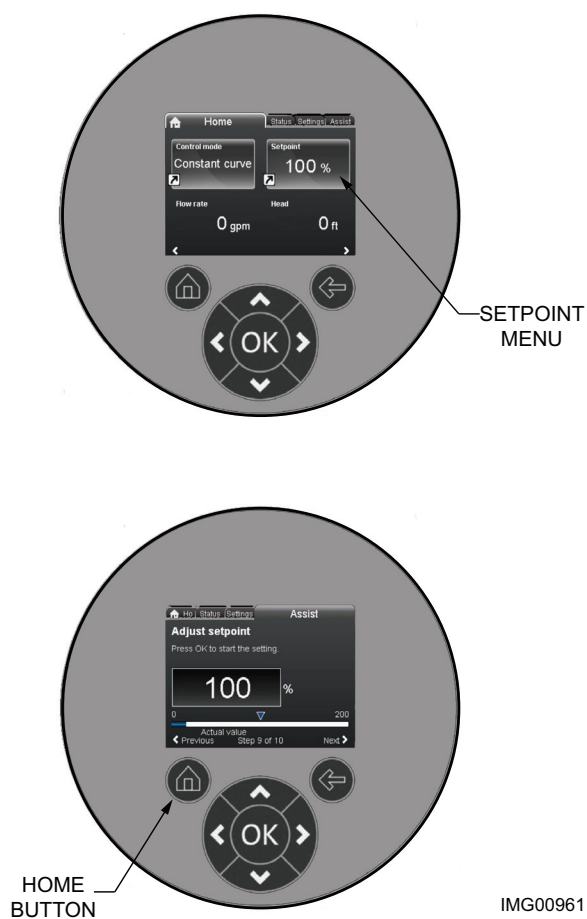
*Based on 30°F Temperature Rise

TABLE 1D - KBX TEMPERATURE RISE APPLICATIONS						
Model	20°F			25°F		
	GPM	Magna 3	Setpoint (%)	GPM	Magna 3	Setpoint (%)
400	38	40-80	67%	30	40-80	55%
500	48	40-80	80%	38	40-80	72%
650	62	50-150	60%	50	40-80	74%
800	76	50-150	63%	61	50-150	55%
1000	96	50-150	68%	76	50-150	54%

TABLE 1E - CREST & CREST HELLCAT TEMPERATURE RISE APPLICATIONS

Model	20°F				30°F				40°F			
	GPM	FT/HD	Magna 3	Setpoint %	GPM	FT/HD	Magna 3	Setpoint %	GPM	FT/HD	Magna 3	Setpoint %
KEB0015	5.4	3.3	32-60	41%	3.3	3.6	32-60	42%	2.4	3.6	32-60	42%
KEB0030	11.0	3.4	32-60	43%	7.0	3.5	32-60	43%	4.7	3.6	32-60	42%
KEB0045	16.0	3.5	32-60	48%	10.8	3.5	32-60	44%	7.9	3.6	32-60	43%
KEB0060	21.9	3.7	40-80	40%	14.2	3.7	32-60	47%	10.8	3.7	32-60	45%
KEB0075	27.1	3.9	40-80	44%	18.1	3.8	32-60	52%	13.1	3.8	32-60	47%
KEB0090	32.7	4.1	40-80	47%	21.0	3.9	32-60	55%	16.0	3.9	32-60	50%
KEB0105	37.0	4.3	40-80	50%	25.7	4.0	32-60	62%	18.9	3.9	32-60	53%
KEB0120	41.6	4.4	40-80	53%	28.1	4.0	32-60	65%	20.8	3.8	32-60	55%
KEB0135	45.7	4.7	40-80	58%	31.1	4.2	32-60	70%	23.8	4.0	32-60	59%
KEB0150	52.0	5.1	40-80	62%	35.1	4.3	32-60	76%	26.1	4.3	32-60	63%

Figure 2 Pump Setpoint Screens



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Revision Notes: Revision A (ECO C14573) initial release.

Revision B (ECO C14859) reflects the update of Table 1A, Table 1B and other text adjustments.

Revision C (ECO C15375) reflects the addition of FTX Models and Table 1C.

Revision D (ECO C17117) reflects the addition of the system sensor note on page 1, Step 1.

DIR# 2000505834 Rev A (CN# 500000615) creation of TLT DIR in SAP.

Rev B (CN # 500000827) reflects the addition of Crest 751 - 1251 models and update of Tables 1B and 1C.

Revision C (PCP #3000030930 / CN# 500020087) reflects an update to Table 1C.

Revision D (PCP #3000036241 / CN #500024638) reflects an update to the installation of the wiring procedure on page 1.

Revision E (PCP #3000047451 / CN #500035320) reflects the addition of Table 1D - KBX Temperature Rise Applications on page 2.

Revision F (PCP #3000051890 / CN #500038865) reflects addition of the 1000 to table 1B on page 2.

Revision G (PCP #3000057460 / CN #500043669) reflects the addition of the Crest.

Revision H (PCP #3000063036 / CN #500048969) reflects the addition of table 1E.