

OptiPump HPS Controller Version 2.07 – SCADA Modbus Map – Rev 1.00 – 02/17/2022

Monitors (16-Bit Holding Registers) - Read-Only (0x03)

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
0	Version Software/Firmware/Program	x					
1	HOA State	x				0 = Off 1 = Hand 2 = Auto	
2	Command Reference (x.xx Hz)	x.xx	Hz				
7	Index Alarm (Future SD Log)	N/A	N/A				
8	Index Shutdown (Future SD Log)	N/A	N/A				
9	Index Fault (Future SD Log)	N/A	N/A				
10	Raw Analog Input 1	x	N/A	0	1023		1024 = Out of Range
11	Raw Analog Input 2	x	N/A	0	1023		1024 = Out of Range
12	Raw Analog Input 3	x	N/A	0	1023		1024 = Out of Range
13	Raw Analog Input 4	x	N/A	0	16383		-1 = Below Range 16384 = Above Range 32767 = Greatly Below/Above Range
14	Raw Analog Input 5	x	N/A	0	16383		-1 = Below Range 16384 = Above Range 32767 = Greatly Below/Above Range
15	Raw Analog Input 6	x	N/A	0	16383		-1 = Below Range 16384 = Above Range 32767 = Greatly Below/Above Range
16	Raw Analog Input 7	x	N/A	0	16383		-1 = Below Range 16384 = Above Range 32767 = Greatly Below/Above Range
17	Raw Analog Input 8	x	N/A	0	16383		-1 = Below Range 16384 = Above Range 32767 = Greatly Below/Above Range
18	Raw Analog Input 9	x	N/A	0	16383		-1 = Below Range 16384 = Above Range 32767 = Greatly Below/Above Range
19	Raw Analog Input 10	x.x	DegF				32767 = Greatly Below/Above Range
20	Raw Analog Input 11	x	N/A	0	16383		-1 = Below Range 16384 = Above Range 32767 = Greatly Below/Above Range
21	Raw Analog Input 12	x	N/A	0	4095		4096 = Exceeds Range
22	Raw Analog Input 13	x	N/A	0	4095		4097 = Exceeds Range
23	Raw Analog Input 14	x	N/A	0	4095		4098 = Exceeds Range
24	Raw Analog Input 15	x	N/A	0	4095		4099 = Exceeds Range
25	Raw Analog Input 16	x.x	DegF	-58.0	860.0		-10000 = Short Circuit 10000 = Open Circuit
26	Raw Analog Input 17	x.x	DegF	-58.0	860.0		-10000 = Short Circuit 10000 = Open Circuit
27	Raw Analog Input 18	x.x	DegF	-58.0	860.0		-10000 = Short Circuit 10000 = Open Circuit
28	Raw Analog Input 19	x.x	DegF	-58.0	860.0		-10000 = Short Circuit 10000 = Open Circuit

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
29	Raw Analog Input 20	x.x	DegF	-58.0	860.0		-10000 = Short Circuit 10000 = Open Circuit
30	Raw Analog Input 21	x.x	DegF	-58.0	860.0		-10000 = Short Circuit 10000 = Open Circuit
31	Raw Analog Input 22	x.x	DegF	-58.0	860.0		-10000 = Short Circuit 10000 = Open Circuit
32	Raw Analog Input 23	x.x	DegF	-58.0	860.0		-10000 = Short Circuit 10000 = Open Circuit
33	Raw (AO1) Pressure Control Valve Position	x	N/A	0	4095		
34	Raw (AO2) Multipurpose	x	N/A	0	4095		
35	Scaled Analog Input 1	x					
36	Scaled Analog Input 2	x					
37	Scaled Analog Input 3	x.x					
38	Scaled Analog Input 3	x.x	PSI				
39	Scaled Analog Input 4	x					
40	Scaled Analog Input 5	x					
41	Scaled Analog Input 6	x.xx					
42	Scaled Analog Input 7	x.x	kBPD				
43	Scaled Analog Input 8	x.x					
44	Scaled Analog Input 9	x.x	%				
45	Scaled Analog Input 10	x.x	DegF	-328.0	1400.0		
46	Scaled Analog Input 11	x.xx					
47	Scaled Analog Input 12	x.xx					
48	Scaled Analog Input 13	x.xx					
49	Scaled Analog Input 14	x.x					
50	Scaled Analog Input 15	x.x					
51	Scaled Analog Input 16	x.x	DegF	-58.0	860.0		
52	Scaled Analog Input 17	x.x	DegF	-58.0	860.0		
53	Scaled Analog Input 18	x.x	DegF	-58.0	860.0		
54	Scaled Analog Input 19	x.x	DegF	-58.0	860.0		
55	Scaled Analog Input 20	x.x	DegF	-58.0	860.0		
56	Scaled Analog Input 21	x.x	DegF	-58.0	860.0		
57	Scaled Analog Input 22	x.x	DegF	-58.0	860.0		
58	Scaled Analog Input 23	x.x	DegF	-58.0	860.0		
59	Scaled Filter Differential Pressure	x.x	PSI				
60	Scaled (AO1) Pressure Control Valve Position	x.x	%				
61	Scaled (AO2) Multipurpose	x.x	%				
62	V/mA Analog Input 1	x.xx	mA				
63	V/mA Analog Input 2	x.xx	mA				
64	V/mA Analog Input 3	x.xx	mA				
65	V/mA Analog Input 4	x.xx	mA				
66	V/mA Analog Input 5	x.xx	mA				
67	V/mA Analog Input 6	x.xx	mA				
68	V/mA Analog Input 7	x.xx	mA				
69	V/mA Analog Input 8	x.xx	mA				
70	V/mA Analog Input 9	x.xx	mA				
71	V/mA Analog Input 10	N/A	N/A				Temperature input. Always 0.
72	V/mA Analog Input 11	x.xx	mA				
73	V/mA Analog Input 12	x.xx	mA				
74	V/mA Analog Input 13	x.xx	mA				

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
75	V/mA Analog Input 14	x.xx	mA				
76	V/mA Analog Input 15	x.xx	mA				
77	V/mA Analog Input 16	N/A	N/A				Temperature input. Always 0.
78	V/mA Analog Input 17	N/A	N/A				Temperature input. Always 0.
79	V/mA Analog Input 18	N/A	N/A				Temperature input. Always 0.
80	V/mA Analog Input 19	N/A	N/A				Temperature input. Always 0.
81	V/mA Analog Input 20	N/A	N/A				Temperature input. Always 0.
82	V/mA Analog Input 21	N/A	N/A				Temperature input. Always 0.
83	V/mA Analog Input 22	N/A	N/A				Temperature input. Always 0.
84	V/mA Analog Input 23	N/A	N/A				Temperature input. Always 0.
85	V/mA (AO1) Pressure Control Valve Position	x.xx	mA				
86	V/mA (AO2) Multipurpose	x.xx	mA				
142	Status	x	N/A			0 = Off 1 = Ready 2 = Pre-Run 3 = Run 4 = Post-Run 5 = Alarm 6 = Shutdown 7 = Fault 8 = Restart	
143	Alarm	x	N/A				See Alarm list for values.
144	Shutdown	x	N/A				See Shutdown list for values.
145	Fault	x	N/A				See Fault list for values.
146	Fault VFD	x	N/A				See Fault VFD list for values.
147	Shutdown Restart Type	x	N/A			1 = Manual 2 = Timed	
148	Shutdown Restart Time	x	Minutes				
149	Shutdown Restart Countdown	x	Minutes				
150	Fault Restart Type	x				1 = Manual 2 = Timed	
151	Fault Restart Time	x	Minutes				
152	Fault Restart Countdown	x	Minutes				
153	Capacity	x.x	HP				
154	Rated Current	x.x	A				
155	Reference Frequency	x.xx	Hz				
156	Output Frequency	x.xx	Hz				
157	Motor Voltage	x.x	VAC				
158	Motor Current	x.x	A				
159	Motor Torque	x	LbFt				
160	DC Bus	x	VDC				
161	Motor Speed	x	RPM				
164	Pre-Run State	x				0 = Waiting 1 = Thrust Chamber Oil Pump Run 2 = Block Valve Open 3 = Pressure Control Valve Position 4 = Charge Pump Run 5 = Done	
165	Post-Run State FUTURE USE	x					
166	Motor Horsepower	x.x	HP				
167	Motor Synchronous Speed	x	RPM				

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
168	Motor Poles	x	N/A				
200	Motor Rated Torque	x	LbFt				
201	Fault Reference Frequency	x.xx	Hz				
202	Fault Output Frequency	x.xx	Hz				
203	Fault Output Voltage	x.x	VAC				
204	Fault Output Current	x.x	A				
205	Fault Output Torque	x	LbFt				
206	Fault DC Bus	x	VDC				
207	Fault Motor Horsepower	x.x	HP				
208	Fault Motor Speed	x	RPM				
209	Fault Internal Temp	x	DegC				
210	Fault Heatsink Temp	x	DegC				
211	Fault Internal Temp	x	DegF				
212	Fault Heatsink Temp	x	DegF				
213	Internal Temp	x	DegF				
214	Heatsink Temp	x	DegF				
215	Pressure Control Valve Commanded Position	x.x	%				
228	Auto Pump Curve Discharge Pressure Target	x	PSI				
229	Discharge Pressure Target	x	PSI				
230	SD Card Status	x				0 = No SD Card 1 = Present - Read-Only 2 = Present - OK	
231	SD Logging Status	x				0 = Stopped 1 = Active	
232	Access Level	x				1 = View-Only 2 = Limited Operator 3 = Full Supervisor 4 = Factory	
233	Pressure Control Valve Position Error	x.x	%				
242	Speed Error	x.xx	Hz				
243	Discharge Pressure Error	x	PSI				
244	Discharge Error Lower Limit	x	PSI				
245	Discharge Error Upper Limit	x	PSI				
251	Thrust Chamber Oil Temperature	x.x	DegF			Works with either AI10 or AI16.	
252	Input Power	x.x	kW				
254	Curve Area Lower Bounds	x.xx	Hz				
255	Curve Area Upper Bounds	x.xx	Hz				
256	Pressure Control Valve Control Mode	x				0 = Auto Pump Curve 1 = Manual Pressure 2 = Manual Position	
257	Block Valve Status	x				0 = Disabled 1 = Command Open 2 = Command Close 3 = Opening 4 = Closing 5 = Open 6 = Closed 7 = Open and Closed	
258	Block Valve Commanded Position	x.x	%				
259	Last Version Software/Firmware/Program	x.xx					

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
260	Pump Curve Generation State	x		0	4	0 = Idle 1 = Initialization 2 = Min/Max 3 = Points 4 = Reset, Go Idle	
261	Pump Curve Generation Progress	x	%				
262	Pump Curve Generation Steps	x					
263	Screensaver Picture Index						
264	Maintenance Reminder 1 Frequency	x		0	2	0 = Disabled 1 = Run-Time 2 = Monthly	
265	Maintenance Reminder 1 Run-Time Source	x		0	3	0 = Panel 1 = Main Pump 2 = Charge Pump 3 = Thrust Chamber Oil Pump	
266	Maintenance Reminder 1 Time Remaining	x	Hrs				
267	Maintenance Reminder 1 Status	x		0	2	0 = Disabled 1 = OK 2 = Attention	
268	Maintenance Reminder 2 Frequency	x		0	2	0 = Disabled 1 = Run-Time 2 = Monthly	
269	Maintenance Reminder 2 Run-Time Source	x		0	3	0 = Panel 1 = Main Pump 2 = Charge Pump 3 = Thrust Chamber Oil Pump	
270	Maintenance Reminder 2 Time Remaining	x	Hrs				
271	Maintenance Reminder 2 Status	x		0	2	0 = Disabled 1 = OK 2 = Attention	
272	Maintenance Reminder 3 Frequency	x		0	2	0 = Disabled 1 = Run-Time 2 = Monthly	
273	Maintenance Reminder 3 Run-Time Source	x		0	3	0 = Panel 1 = Main Pump 2 = Charge Pump 3 = Thrust Chamber Oil Pump	
274	Maintenance Reminder 3 Time Remaining	x	Hrs				
275	Maintenance Reminder 3 Status	x		0	2	0 = Disabled 1 = OK 2 = Attention	
276	Maintenance Reminder 4 Frequency	x		0	2	0 = Disabled 1 = Run-Time 2 = Monthly	
277	Maintenance Reminder 4 Run-Time Source	x		0	3	0 = Panel 1 = Main Pump 2 = Charge Pump 3 = Thrust Chamber Oil Pump	
278	Maintenance Reminder 4 Time Remaining	x	Hrs				

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
279	Maintenance Reminder 4 Status	x		0	2	0 = Disabled 1 = OK 2 = Attention	
280	Maintenance Reminder 5 Frequency	x		0	2	0 = Disabled 1 = Run-Time 2 = Monthly	
281	Maintenance Reminder 5 Run-Time Source	x		0	3	0 = Panel 1 = Main Pump 2 = Charge Pump 3 = Thrust Chamber Oil Pump	
282	Maintenance Reminder 5 Time Remaining	x	Hrs				
283	Maintenance Reminder 5 Status	x		0	2	0 = Disabled 1 = OK 2 = Attention	
284	Maintenance Reminder 6 Frequency	x		0	2	0 = Disabled 1 = Run-Time 2 = Monthly	
285	Maintenance Reminder 6 Run-Time Source	x		0	3	0 = Panel 1 = Main Pump 2 = Charge Pump 3 = Thrust Chamber Oil Pump	
286	Maintenance Reminder 6 Time Remaining	x	Hrs				
287	Maintenance Reminder 6 Status	x		0	2	0 = Disabled 1 = OK 2 = Attention	
288	Maintenance Reminder 7 Frequency	x		0	2	0 = Disabled 1 = Run-Time 2 = Monthly	
289	Maintenance Reminder 7 Run-Time Source	x		0	3	0 = Panel 1 = Main Pump 2 = Charge Pump 3 = Thrust Chamber Oil Pump	
290	Maintenance Reminder 7 Time Remaining	x	Hrs				
291	Maintenance Reminder 7 Status	x		0	2	0 = Disabled 1 = OK 2 = Attention	
292	Maintenance Reminder 8 Frequency	x		0	2	0 = Disabled 1 = Run-Time 2 = Monthly	
293	Maintenance Reminder 8 Run-Time Source	x		0	3	0 = Panel 1 = Main Pump 2 = Charge Pump 3 = Thrust Chamber Oil Pump	
294	Maintenance Reminder 8 Time Remaining	x	Hrs				
295	Maintenance Reminder 8 Status	x		0	2	0 = Disabled 1 = OK 2 = Attention	
296	Maintenance Reminder 9 Frequency	x		0	2	0 = Disabled 1 = Run-Time 2 = Monthly	

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
297	Maintenance Reminder 9 Run-Time Source	x		0	3	0 = Panel 1 = Main Pump 2 = Charge Pump 3 = Thrust Chamber Oil Pump	
298	Maintenance Reminder 9 Time Remaining	x	Hrs				
299	Maintenance Reminder 9 Status	x		0	2	0 = Disabled 1 = OK 2 = Attention	
300	Maintenance Reminder 10 Frequency	x		0	2	0 = Disabled 1 = Run-Time 2 = Monthly	
301	Maintenance Reminder 10 Run-Time Source	x		0	3	0 = Panel 1 = Main Pump 2 = Charge Pump 3 = Thrust Chamber Oil Pump	
302	Maintenance Reminder 10 Time Remaining	x	Hrs				
303	Maintenance Reminder 10 Status	x		0	2	0 = Disabled 1 = OK 2 = Attention	
304	RESERVED						
305	Tank Screen Tank 1 Level	x.x					
306	Tank Screen Tank 1 Scale Minimum	x.x					
307	Tank Screen Tank 1 Scale Maximum	x.x					
308	Tank Screen Tank 2 Level	x.x					
309	Tank Screen Tank 2 Scale Minimum	x.x					
310	Tank Screen Tank 2 Scale Maximum	x.x					
311	Tank Screen Tank 3 Level	x.x					
312	Tank Screen Tank 3 Scale Minimum	x.x					
313	Tank Screen Tank 3 Scale Maximum	x.x					
314	Tank Screen Tank 4 Level	x.x					
315	Tank Screen Tank 4 Scale Minimum	x.x					
316	Tank Screen Tank 4 Scale Maximum	x.x					
317	Tank Screen Tank 5 Level	x.x					
318	Tank Screen Tank 5 Scale Minimum	x.x					
319	Tank Screen Tank 5 Scale Maximum	x.x					
320	Tank Screen Tank 6 Level	x.x					
321	Tank Screen Tank 6 Scale Minimum	x.x					
322	Tank Screen Tank 6 Scale Maximum	x.x					
323	VFD Heatsink Rated Overtemperature Threshold	x	DegC				
324	VFD Thermal Warning Threshold	x	DegC				

Monitors (32-Bit Holding Registers) – Read-Only (0x03)

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
28672	Scaled Analog Input 7	x	BPD				
28673	Scaled Analog Input 8	x					
28692	Accumulated/Totalized Analog Input 7 Today	x	Brrls				
28693	Accumulated/Totalized Analog Input 7 Previous Day	x	Brrls				
28694	Accumulated/Totalized Analog Input 8 Today	x	Brrls				
28695	Accumulated/Totalized Analog Input 8 Previous Day	x	Brrls				
28696	Main Pump Run Time	x	Secs				
28697	Thrust Chamber Oil Pump Run Time	x	Secs				
28698	Charge Pump Run Time	x	Secs				
28699	Main Pump Run Time	x.x	Hrs				
28700	Thrust Chamber Oil Pump Run Time	x.x	Hrs				
28701	Charge Pump Run Time	x.x	Hrs				
28702	Power-Loss RTC Date	x					MMDDYY
28703	Power-Loss RTC Time	x					HHMMSS
28704	Panel Run Time	x	Secs				
28705	Panel Run Time	x.x	Hrs				
28706	Maintenance Reminder 1 Time Remaining	x	Secs				
28707	Maintenance Reminder 2 Time Remaining	x	Secs				
28708	Maintenance Reminder 3 Time Remaining	x	Secs				
28709	Maintenance Reminder 4 Time Remaining	x	Secs				
28710	Maintenance Reminder 5 Time Remaining	x	Secs				
28711	Maintenance Reminder 6 Time Remaining	x	Secs				
28712	Maintenance Reminder 7 Time Remaining	x	Secs				
28713	Maintenance Reminder 8 Time Remaining	x	Secs				
28714	Maintenance Reminder 9 Time Remaining	x	Secs				
28715	Maintenance Reminder 10 Time Remaining	x	Secs				
28716	Accumulated/Totalized Analog Input 7 Continuous	x	Brrls		2,147,483,647		
28717	Accumulated/Totalized Analog Input 8 Continuous	x	Brrls		2,147,483,647		

Monitors (Bits/Coils) – Read-Only (0x01)

Address	Description	Notes
10	Command Hand	
11	Command Auto	
12	Command Run	
13	Command Forward	
14	Command Reverse	
15	Command Reset Shutdown/Fault	
16	Command Motor Auto-Tune	
17	Command Reset SD Log	
18	Command Reset Manual	
19	Command PID1 Pressure Control Valve Auto-Tune	
20	Command PID2 Speed Auto-Tune	
21	Command 7-Point Auto Bounds	
22	Command Clear Events	
23	Command Reset kWh	
24	Command Reset SCADA	
25	Command Bit 15	
28	Status 1 Forward	
29	Status 1 Reverse	
30	Status 1 Pre-Run	
31	Status 1 Run	
32	Status 1 Post Run	
33	Status 1 Alarm	
34	Status 1 Shutdown	
35	Status 1 Fault	
36	Status 1 Fault VFD	
37	Status 1 Restart	
38	Status 1 Current Limiting	
39	Status 1 Torque Limiting	
40	Status 1 Accelerating	
41	Status 1 Decelerating	
42	Status 1 OptiMode	
43	Status 1 Maintenance Required	
46	Status 2 Master Enable	
47	Status 2 Bit 1	
48	Status 2 Bit 2	
49	Status 2 Bit 3	
50	Status 2 Bit 4	
51	Status 2 Bit 5	
52	Status 2 Bit 6	
53	Status 2 Bit 7	
54	Status 2 Bit 8	
55	Status 2 Bit 10	
56	Status 2 Bit 11	
57	Status 2 Bit 12	
58	Status 2 Bit 13	
59	Status 2 Bit 14	
60	Status 2 Bit 15	

Address	Description	Notes
61	Status 2 Bit 16	
100	Active Digital Input 1	
101	Active Digital Input 2	
102	Active Digital Input 3	
103	Active Digital Input 4	
104	Active Digital Input 5	
105	Active Digital Input 6	
106	Active Digital Input 7	
107	Active Digital Input 8	
108	Active Digital Input 9	
109	Active Digital Input 10	
110	Active Digital Input 11	
111	Active Digital Input 12	
112	Active Digital Input 13	
113	Active Digital Input 14	
114	Active Digital Input 15	
115	Active Digital Input 16	
116	Active (DO01) Charge Pump Run	
117	Active (DO02) Thrust Chamber Oil Pump Run	
118	Active (DO03) Block Valve Open	
119	Active (DO04) Heat Trace On	
120	Active (DO05) Hand Active	
121	Active (DO06) Run	
122	Active (DO07) Alarm	
123	Active (DO08) Shutdown	
124	Active (DO09) Fault	
125	Active (DO10) Status Ready (Yellow)	
126	Active (DO11) Status Run (Green)	
127	Active (DO12) Status Problem (Red)	
128	Active (DO13) Spare 1	
129	Active (DO14) Spare 2	
130	Active (DO15) Spare 3	
131	Active (DO16) Spare 4	
200	Alarm Active None	
201	Alarm Active Multiple	
202	Alarm Active Analog Input 1 High-High	
203	Alarm Active Analog Input 1 High	
204	Alarm Active Analog Input 1 Low	
205	Alarm Active Analog Input 1 Low-Low	
206	Alarm Active Analog Input 2 High-High	
207	Alarm Active Analog Input 2 High	
208	Alarm Active Analog Input 2 Low	
209	Alarm Active Analog Input 2 Low-Low	
210	Alarm Active Analog Input 3 High-High	
211	Alarm Active Analog Input 3 High	
212	Alarm Active Analog Input 3 Low	
213	Alarm Active Analog Input 3 Low-Low	
214	Alarm Active Analog Input 4 High-High	
215	Alarm Active Analog Input 4 High	
216	Alarm Active Analog Input 4 Low	

Address	Description	Notes
217	Alarm Active Analog Input 4 Low-Low	
218	Alarm Active Analog Input 5 High-High	
219	Alarm Active Analog Input 5 High	
220	Alarm Active Analog Input 5 Low	
221	Alarm Active Analog Input 5 Low-Low	
222	Alarm Active Analog Input 6 High-High	
223	Alarm Active Analog Input 6 High	
224	Alarm Active Analog Input 6 Low	
225	Alarm Active Analog Input 6 Low-Low	
226	Alarm Active Analog Input 7 High-High	
227	Alarm Active Analog Input 7 High	
228	Alarm Active Analog Input 7 Low	
229	Alarm Active Analog Input 7 Low-Low	
230	Alarm Active Analog Input 8 High-High	
231	Alarm Active Analog Input 8 High	
232	Alarm Active Analog Input 8 Low	
233	Alarm Active Analog Input 8 Low-Low	
234	Alarm Active Analog Input 9 High-High	
235	Alarm Active Analog Input 9 High	
236	Alarm Active Analog Input 9 Low	
237	Alarm Active Analog Input 9 Low-Low	
238	Alarm Active Analog Input 10 High-High	
239	Alarm Active Analog Input 10 High	
240	Alarm Active Analog Input 10 Low	
241	Alarm Active Analog Input 10 Low-Low	
242	Alarm Active Analog Input 11 High-High	
243	Alarm Active Analog Input 11 High	
244	Alarm Active Analog Input 11 Low	
245	Alarm Active Analog Input 11 Low-Low	
246	Alarm Active Analog Input 12 High-High	
247	Alarm Active Analog Input 12 High	
248	Alarm Active Analog Input 12 Low	
249	Alarm Active Analog Input 12 Low-Low	
250	Alarm Active Analog Input 13 High-High	
251	Alarm Active Analog Input 13 High	
252	Alarm Active Analog Input 13 Low	
253	Alarm Active Analog Input 13 Low-Low	
254	Alarm Active Analog Input 14 High-High	
255	Alarm Active Analog Input 14 High	
256	Alarm Active Analog Input 14 Low	
257	Alarm Active Analog Input 14 Low-Low	
258	Alarm Active Analog Input 15 High-High	
259	Alarm Active Analog Input 15 High	
260	Alarm Active Analog Input 15 Low	
261	Alarm Active Analog Input 15 Low-Low	
262	Alarm Active Analog Input 16 High-High	
263	Alarm Active Analog Input 16 High	
264	Alarm Active Analog Input 16 Low	
265	Alarm Active Analog Input 16 Low-Low	
266	Alarm Active Analog Input 17 High-High	

Address	Description	Notes
267	Alarm Active Analog Input 17 High	
268	Alarm Active Analog Input 17 Low	
269	Alarm Active Analog Input 17 Low-Low	
270	Alarm Active Analog Input 18 High-High	
271	Alarm Active Analog Input 18 High	
272	Alarm Active Analog Input 18 Low	
273	Alarm Active Analog Input 18 Low-Low	
274	Alarm Active Analog Input 19 High-High	
275	Alarm Active Analog Input 19 High	
276	Alarm Active Analog Input 19 Low	
277	Alarm Active Analog Input 19 Low-Low	
278	Alarm Active Analog Input 20 High-High	
279	Alarm Active Analog Input 20 High	
280	Alarm Active Analog Input 20 Low	
281	Alarm Active Analog Input 20 Low-Low	
282	Alarm Active Analog Input 21 High-High	
283	Alarm Active Analog Input 21 High	
284	Alarm Active Analog Input 21 Low	
285	Alarm Active Analog Input 21 Low-Low	
286	Alarm Active Analog Input 22 High-High	
287	Alarm Active Analog Input 22 High	
288	Alarm Active Analog Input 22 Low	
289	Alarm Active Analog Input 22 Low-Low	
290	Alarm Active Analog Input 23 High-High	
291	Alarm Active Analog Input 23 High	
292	Alarm Active Analog Input 23 Low	
293	Alarm Active Analog Input 23 Low-Low	
294	Alarm Active Filter Differential Pressure High-High	
295	Alarm Active Filter Differential Pressure High	
296	Alarm Active Digital Input 1	
297	Alarm Active Digital Input 2	
298	Alarm Active Digital Input 3	
299	Alarm Active Digital Input 4	
300	Alarm Active Digital Input 5	
301	Alarm Active Digital Input 6	
302	Alarm Active Digital Input 7	
303	Alarm Active Digital Input 8	
304	Alarm Active Digital Input 9	
305	Alarm Active Digital Input 10	
306	Alarm Active Digital Input 11	
307	Alarm Active Digital Input 12	
308	Alarm Active Digital Input 13	
309	Alarm Active Digital Input 14	
310	Alarm Active Digital Input 15	
311	Alarm Active Digital Input 16	
312	Alarm Active Main Pump Speed Mismatch	
313	Alarm Active Main Pump Out of Curve	
314	Alarm Active Pressure Control Valve Failed to Control Pressure	
315	Alarm Active Block Valve Open	
316	Alarm Active Block Valve Closed	

Address	Description	Notes
317	Alarm Active VFD Heatsink Thermal Warning	
400	Alarm Active Analog Input 1 Any	Set when ANY alarm is active for Analog Input 1 (High-High, High, Low, Low-Low).
401	Alarm Active Analog Input 2 Any	Set when ANY alarm is active for Analog Input 2 (High-High, High, Low, Low-Low).
402	Alarm Active Analog Input 3 Any	Set when ANY alarm is active for Analog Input 3 (High-High, High, Low, Low-Low).
403	Alarm Active Analog Input 4 Any	Set when ANY alarm is active for Analog Input 4 (High-High, High, Low, Low-Low).
404	Alarm Active Analog Input 5 Any	Set when ANY alarm is active for Analog Input 5 (High-High, High, Low, Low-Low).
405	Alarm Active Analog Input 6 Any	Set when ANY alarm is active for Analog Input 6 (High-High, High, Low, Low-Low).
406	Alarm Active Analog Input 7 Any	Set when ANY alarm is active for Analog Input 7 (High-High, High, Low, Low-Low).
407	Alarm Active Analog Input 8 Any	Set when ANY alarm is active for Analog Input 8 (High-High, High, Low, Low-Low).
408	Alarm Active Analog Input 9 Any	Set when ANY alarm is active for Analog Input 9 (High-High, High, Low, Low-Low).
409	Alarm Active Analog Input 10 Any	Set when ANY alarm is active for Analog Input 10 (High-High, High, Low, Low-Low).
410	Alarm Active Analog Input 11 Any	Set when ANY alarm is active for Analog Input 11 (High-High, High, Low, Low-Low).
411	Alarm Active Analog Input 12 Any	Set when ANY alarm is active for Analog Input 12 (High-High, High, Low, Low-Low).
412	Alarm Active Analog Input 13 Any	Set when ANY alarm is active for Analog Input 13 (High-High, High, Low, Low-Low).
413	Alarm Active Analog Input 14 Any	Set when ANY alarm is active for Analog Input 14 (High-High, High, Low, Low-Low).
414	Alarm Active Analog Input 15 Any	Set when ANY alarm is active for Analog Input 15 (High-High, High, Low, Low-Low).
415	Alarm Active Analog Input 16 Any	Set when ANY alarm is active for Analog Input 16 (High-High, High, Low, Low-Low).
416	Alarm Active Analog Input 17 Any	Set when ANY alarm is active for Analog Input 17 (High-High, High, Low, Low-Low).
417	Alarm Active Analog Input 18 Any	Set when ANY alarm is active for Analog Input 18 (High-High, High, Low, Low-Low).
418	Alarm Active Analog Input 19 Any	Set when ANY alarm is active for Analog Input 19 (High-High, High, Low, Low-Low).
419	Alarm Active Analog Input 20 Any	Set when ANY alarm is active for Analog Input 20 (High-High, High, Low, Low-Low).
420	Alarm Active Analog Input 21 Any	Set when ANY alarm is active for Analog Input 21 (High-High, High, Low, Low-Low).
421	Alarm Active Analog Input 22 Any	Set when ANY alarm is active for Analog Input 22 (High-High, High, Low, Low-Low).
422	Alarm Active Analog Input 23 Any	Set when ANY alarm is active for Analog Input 23 (High-High, High, Low, Low-Low).
423	Alarm Active Filter Differential Pressure Any	Set when ANY alarm is active for Filter Differential Pressure (High-High, High).
440	Maintenance Reminder Maintenance Required Any	Set when ANY maintenance reminder is active.
441	Maintenance Reminder 1 Maintenance Required	
442	Maintenance Reminder 2 Maintenance Required	
443	Maintenance Reminder 3 Maintenance Required	
444	Maintenance Reminder 4 Maintenance Required	
445	Maintenance Reminder 5 Maintenance Required	
446	Maintenance Reminder 6 Maintenance Required	
447	Maintenance Reminder 7 Maintenance Required	
448	Maintenance Reminder 8 Maintenance Required	
449	Maintenance Reminder 9 Maintenance Required	
450	Maintenance Reminder 10 Maintenance Required	

Alarm Codes (Register 143)

Code	Description	Notes
0	None	
1	Multiple	
2	Analog Input 1 High-High	
3	Analog Input 1 High	
4	Analog Input 1 Low	
5	Analog Input 1 Low-Low	
6	Analog Input 2 High-High	
7	Analog Input 2 High	
8	Analog Input 2 Low	
9	Analog Input 2 Low-Low	
10	Analog Input 3 High-High	
11	Analog Input 3 High	
12	Analog Input 3 Low	
13	Analog Input 3 Low-Low	
14	Analog Input 4 High-High	
15	Analog Input 4 High	
16	Analog Input 4 Low	
17	Analog Input 4 Low-Low	
18	Analog Input 5 High-High	
19	Analog Input 5 High	
20	Analog Input 5 Low	
21	Analog Input 5 Low-Low	
22	Analog Input 6 High-High	
23	Analog Input 6 High	
24	Analog Input 6 Low	
25	Analog Input 6 Low-Low	
26	Analog Input 7 High-High	
27	Analog Input 7 High	
28	Analog Input 7 Low	
29	Analog Input 7 Low-Low	
30	Analog Input 8 High-High	
31	Analog Input 8 High	
32	Analog Input 8 Low	
33	Analog Input 8 Low-Low	
34	Analog Input 9 High-High	
35	Analog Input 9 High	
36	Analog Input 9 Low	
37	Analog Input 9 Low-Low	
38	Analog Input 10 High-High	
39	Analog Input 10 High	
40	Analog Input 10 Low	
41	Analog Input 10 Low-Low	
42	Analog Input 11 High-High	
43	Analog Input 11 High	
44	Analog Input 11 Low	
45	Analog Input 11 Low-Low	
46	Analog Input 12 High-High	

Code	Description	Notes
47	Analog Input 12 High	
48	Analog Input 12 Low	
49	Analog Input 12 Low-Low	
50	Analog Input 13 High-High	
51	Analog Input 13 High	
52	Analog Input 13 Low	
53	Analog Input 13 Low-Low	
54	Analog Input 14 High-High	
55	Analog Input 14 High	
56	Analog Input 14 Low	
57	Analog Input 14 Low-Low	
58	Analog Input 15 High-High	
59	Analog Input 15 High	
60	Analog Input 15 Low	
61	Analog Input 15 Low-Low	
62	Analog Input 16 High-High	
63	Analog Input 16 High	
64	Analog Input 16 Low	
65	Analog Input 16 Low-Low	
66	Analog Input 17 High-High	
67	Analog Input 17 High	
68	Analog Input 17 Low	
69	Analog Input 17 Low-Low	
70	Analog Input 18 High-High	
71	Analog Input 18 High	
72	Analog Input 18 Low	
73	Analog Input 18 Low-Low	
74	Analog Input 19 High-High	
75	Analog Input 19 High	
76	Analog Input 19 Low	
77	Analog Input 19 Low-Low	
78	Analog Input 20 High-High	
79	Analog Input 20 High	
80	Analog Input 20 Low	
81	Analog Input 20 Low-Low	
82	Analog Input 21 High-High	
83	Analog Input 21 High	
84	Analog Input 21 Low	
85	Analog Input 21 Low-Low	
86	Analog Input 22 High-High	
87	Analog Input 22 High	
88	Analog Input 22 Low	
89	Analog Input 22 Low-Low	
90	Analog Input 23 High-High	
91	Analog Input 23 High	
92	Analog Input 23 Low	
93	Analog Input 23 Low-Low	
94	Filter Differential Pressure High-High	
95	Filter Differential Pressure High	
96	Digital Input 1	

Code	Description	Notes
97	Digital Input 2	
98	Digital Input 3	
99	Digital Input 4	
100	Digital Input 5	
101	Digital Input 6	
102	Digital Input 7	
103	Digital Input 8	
104	Digital Input 9	
105	Digital Input 10	
106	Digital Input 11	
107	Digital Input 12	
108	Digital Input 13	
109	Digital Input 14	
110	Digital Input 15	
111	Digital Input 16	
112	Main Pump Speed Mismatch	
113	Main Pump Out of Curve	
114	Pressure Control Valve Failed to Control Pressure	
115	Block Valve Open	
116	Block Valve Closed	
117	VFD Heatsink Thermal Warning	

Shutdown Codes (Register 144)

Code	Description	Notes
0	None	
1	RESERVED	
2	Analog Input 1 High-High	
3	Analog Input 1 High	
4	Analog Input 1 Low	
5	Analog Input 1 Low-Low	
6	Analog Input 2 High-High	
7	Analog Input 2 High	
8	Analog Input 2 Low	
9	Analog Input 2 Low-Low	
10	Analog Input 3 High-High	
11	Analog Input 3 High	
12	Analog Input 3 Low	
13	Analog Input 3 Low-Low	
14	Analog Input 4 High-High	
15	Analog Input 4 High	
16	Analog Input 4 Low	
17	Analog Input 4 Low-Low	
18	Analog Input 5 High-High	
19	Analog Input 5 High	
20	Analog Input 5 Low	
21	Analog Input 5 Low-Low	
22	Analog Input 6 High-High	
23	Analog Input 6 High	
24	Analog Input 6 Low	
25	Analog Input 6 Low-Low	
26	Analog Input 7 High-High	
27	Analog Input 7 High	
28	Analog Input 7 Low	
29	Analog Input 7 Low-Low	
30	Analog Input 8 High-High	
31	Analog Input 8 High	
32	Analog Input 8 Low	
33	Analog Input 8 Low-Low	
34	Analog Input 9 High-High	
35	Analog Input 9 High	
36	Analog Input 9 Low	
37	Analog Input 9 Low-Low	
38	Analog Input 10 High-High	
39	Analog Input 10 High	
40	Analog Input 10 Low	
41	Analog Input 10 Low-Low	
42	Analog Input 11 High-High	
43	Analog Input 11 High	
44	Analog Input 11 Low	
45	Analog Input 11 Low-Low	
46	Analog Input 12 High-High	

Code	Description	Notes
47	Analog Input 12 High	
48	Analog Input 12 Low	
49	Analog Input 12 Low-Low	
50	Analog Input 13 High-High	
51	Analog Input 13 High	
52	Analog Input 13 Low	
53	Analog Input 13 Low-Low	
54	Analog Input 14 High-High	
55	Analog Input 14 High	
56	Analog Input 14 Low	
57	Analog Input 14 Low-Low	
58	Analog Input 15 High-High	
59	Analog Input 15 High	
60	Analog Input 15 Low	
61	Analog Input 15 Low-Low	
62	Analog Input 16 High-High	
63	Analog Input 16 High	
64	Analog Input 16 Low	
65	Analog Input 16 Low-Low	
66	Analog Input 17 High-High	
67	Analog Input 17 High	
68	Analog Input 17 Low	
69	Analog Input 17 Low-Low	
70	Analog Input 18 High-High	
71	Analog Input 18 High	
72	Analog Input 18 Low	
73	Analog Input 18 Low-Low	
74	Analog Input 19 High-High	
75	Analog Input 19 High	
76	Analog Input 19 Low	
77	Analog Input 19 Low-Low	
78	Analog Input 20 High-High	
79	Analog Input 20 High	
80	Analog Input 20 Low	
81	Analog Input 20 Low-Low	
82	Analog Input 21 High-High	
83	Analog Input 21 High	
84	Analog Input 21 Low	
85	Analog Input 21 Low-Low	
86	Analog Input 22 High-High	
87	Analog Input 22 High	
88	Analog Input 22 Low	
89	Analog Input 22 Low-Low	
90	Analog Input 23 High-High	
91	Analog Input 23 High	
92	Analog Input 23 Low	
93	Analog Input 23 Low-Low	
94	Filter Differential Pressure High-High	
95	Filter Differential Pressure High	
96	Digital Input 1	

Code	Description	Notes
97	Digital Input 2	
98	Digital Input 3	
99	Digital Input 4	
100	Digital Input 5	
101	Digital Input 6	
102	Digital Input 7	
103	Digital Input 8	
104	Digital Input 9	
105	Digital Input 10	
106	Digital Input 11	
107	Digital Input 12	
108	Digital Input 13	
109	Digital Input 14	
110	Digital Input 15	
111	Digital Input 16	
112	Main Pump Speed Mismatch	
113	Main Pump Out of Curve	
114	Pressure Control Valve Failed to Control Pressure	

Fault Codes (Register 145)

Code	Description	Notes
0	None	
1	VFD Fault	
2	Analog Input 1 Signal-Loss	
3	Analog Input 2 Signal-Loss	
4	Analog Input 3 Signal-Loss	
5	Analog Input 4 Signal-Loss	
6	Analog Input 5 Signal-Loss	
7	Analog Input 6 Signal-Loss	
8	Analog Input 7 Signal-Loss	
9	Analog Input 8 Signal-Loss	
10	Analog Input 9 Signal-Loss	
11	Analog Input 10 Signal-Loss	
12	Analog Input 11 Signal-Loss	
13	Analog Input 12 Signal-Loss	
14	Analog Input 13 Signal-Loss	
15	Analog Input 14 Signal-Loss	
16	Analog Input 15 Signal-Loss	
17	Analog Input 16 Signal-Loss	
18	Analog Input 17 Signal-Loss	
19	Analog Input 18 Signal-Loss	
20	Analog Input 19 Signal-Loss	
21	Analog Input 20 Signal-Loss	
22	Analog Input 21 Signal-Loss	
23	Analog Input 22 Signal-Loss	
24	Analog Input 23 Signal-Loss	
25	Block Valve Failed to Open	
26	Pressure Control Valve Failed to Position	
27	Thrust Chamber Oil Pump Failed to Run	
28	Charge Pump Failed to Run	
29	Main Pump Failed to Run	
30	VFD Communications Failed	
31	VFD Failed to Stop at Start-up	
32	Battery Failure	
33	Hand and Auto Both Active	
34	Block Valve Failed to Close	
35	Block Valve Open and Close Both Active	

VFD Fault Codes (Register 146)

Code	Description	Notes
0	None	
1	(OC1) Overcurrent During Accel	
2	(OC2) Overcurrent During Decel	
3	(OC3) Overcurrent At Set Speed	
4	Undefined VFD Fault 4	
5	EF Ground Fault	
6	(OU1) Overvoltage During Accel	
7	(OU2) Overvoltage During Decel	
8	(OU3) Overvoltage At Set Speed	
9	Undefined VFD Fault 9	
10	(LU) Undervoltage	
11	(Lin) Input Phase Loss	
12	Undefined VFD Fault 12	
13	Undefined VFD Fault 13	
14	(FUS) DC Bus Fuse Blown	
15	Undefined VFD Fault 15	
16	(PbF) Charging Circuit Fault	
17	(OH1) Heatsink Overheat	
18	(OH2) External Shutdown	
19	(OH3) Internal Overheat	
20	(OH4) Motor PTC/NTC Overheat	
21	Undefined VFD Fault 21	
22	(dbH) Braking Resistor Overheat	
23	(OL1) Motor Overload	
24	(OL2) Motor 2 Overload	
25	(OLU) VFD Overload	
26	Undefined VFD Fault 26	
27	(OS) Overspeed Protection	
28	(PG) PG Disconnected	
29	(nrb) NTC Disconnected	
30	Undefined VFD Fault 30	
31	(Er1) Memory Error	
32	(Er2) Keypad Comm Error	
33	(Er3) CPU Error	
34	(Er4) Option Card Comm Error	
35	(Er5) Option Card Error	
36	(Er6) Stop Key Error	
37	(Er7) Auto-Tuning Error	
38	(Er8) RS485 Comm Port 1 Error	
39	Undefined VFD Fault 39	
40	Undefined VFD Fault 40	
41	Undefined VFD Fault 41	
42	Undefined VFD Fault 42	
43	Undefined VFD Fault 43	
44	(OL3) Motor 3 Overload	
45	(OL4) Motor 4 Overload	
46	(OPL) Output Phase Loss	

Code	Description	Notes
47	(ErE) Excessive Speed Deviation	
48	Undefined VFD Fault 48	
49	Undefined VFD Fault 49	
50	Undefined VFD Fault 50	
51	(ErF) Data Save Error	
52	Undefined VFD Fault 52	
53	(ErP) RS485 Comm Port 2 Error	
54	(ErH) Hardware Error	
55	Undefined VFD Fault 55	
56	Undefined VFD Fault 56	
57	(ECN) Enabled EN1/EN2 Lost	
58	(CoF) PID Fdbck Disconnected	
59	(dbA) Dynamic Braking Transistor	
60	Undefined VFD Fault 60	
61	Undefined VFD Fault 61	
62	Undefined VFD Fault 62	
63	Undefined VFD Fault 63	
64	Undefined VFD Fault 64	
65	Undefined VFD Fault 65	
66	Undefined VFD Fault 66	
67	Undefined VFD Fault 67	
68	Undefined VFD Fault 68	
69	Undefined VFD Fault 69	
70	Undefined VFD Fault 70	
71	Undefined VFD Fault 71	
72	Undefined VFD Fault 72	
73	Undefined VFD Fault 73	
74	Undefined VFD Fault 74	
75	Undefined VFD Fault 75	
76	Undefined VFD Fault 76	
77	Undefined VFD Fault 77	
78	Undefined VFD Fault 78	
79	Undefined VFD Fault 79	
80	Undefined VFD Fault 80	
81	Undefined VFD Fault 81	
82	Undefined VFD Fault 82	
83	Undefined VFD Fault 83	
84	Undefined VFD Fault 84	
85	Undefined VFD Fault 85	
86	Undefined VFD Fault 86	
87	Undefined VFD Fault 87	
88	Undefined VFD Fault 88	
89	Undefined VFD Fault 89	
90	Undefined VFD Fault 90	
91	Undefined VFD Fault 91	
92	Undefined VFD Fault 92	
93	Undefined VFD Fault 93	
94	Undefined VFD Fault 94	
95	Undefined VFD Fault 95	
96	Undefined VFD Fault 96	

Code	Description	Notes
97	Undefined VFD Fault 97	
98	Undefined VFD Fault 98	
99	Undefined VFD Fault 99	
100	(FAL) Internal DC Fan Failure	
101	(OL) Motor Overload Warn	
102	(OH) Cooling Fin Overheat Warn	
103	(LiF) Component Life Warn	
104	(rEF) Command Loss	
105	(Pid) PID Output Warn	
106	(UTL) Low Torque Detected	
107	(PTC) Thermistor Loss	
108	(rTE) Machine Life Accum Hours	
109	(CnT) Machine Life Start Count	
110	Undefined VFD Fault 110	
111	Undefined VFD Fault 111	
112	Undefined VFD Fault 112	
113	Undefined VFD Fault 113	
114	Undefined VFD Fault 114	
115	Undefined VFD Fault 115	
116	Undefined VFD Fault 116	
117	Undefined VFD Fault 117	
118	Undefined VFD Fault 118	
119	Undefined VFD Fault 119	
120	Undefined VFD Fault 120	
121	Undefined VFD Fault 121	
122	Undefined VFD Fault 122	
123	Undefined VFD Fault 123	
124	Undefined VFD Fault 124	
125	Undefined VFD Fault 125	
126	Undefined VFD Fault 126	
127	Undefined VFD Fault 127	
128	Undefined VFD Fault 128	
129	Undefined VFD Fault 129	
130	Undefined VFD Fault 130	
131	Undefined VFD Fault 131	
132	Undefined VFD Fault 132	
133	Undefined VFD Fault 133	
134	Undefined VFD Fault 134	
135	Undefined VFD Fault 135	
136	Undefined VFD Fault 136	
137	Undefined VFD Fault 137	
138	Undefined VFD Fault 138	
139	Undefined VFD Fault 139	
140	Undefined VFD Fault 140	
141	Undefined VFD Fault 141	
142	Undefined VFD Fault 142	
143	Undefined VFD Fault 143	
144	Undefined VFD Fault 144	
145	Undefined VFD Fault 145	
146	Undefined VFD Fault 146	

Code	Description	Notes
147	Undefined VFD Fault 147	
148	Undefined VFD Fault 148	
149	Undefined VFD Fault 149	
150	Undefined VFD Fault 150	
151	Undefined VFD Fault 151	
152	Undefined VFD Fault 152	
153	Undefined VFD Fault 153	
154	Undefined VFD Fault 154	
155	Undefined VFD Fault 155	
156	Undefined VFD Fault 156	
157	Undefined VFD Fault 157	
158	Undefined VFD Fault 158	
159	Undefined VFD Fault 159	
160	Undefined VFD Fault 160	
161	Undefined VFD Fault 161	
162	Undefined VFD Fault 162	
163	Undefined VFD Fault 163	
164	Undefined VFD Fault 164	
165	Undefined VFD Fault 165	
166	Undefined VFD Fault 166	
167	Undefined VFD Fault 167	
168	Undefined VFD Fault 168	
169	Undefined VFD Fault 169	
170	Undefined VFD Fault 170	
171	Undefined VFD Fault 171	
172	Undefined VFD Fault 172	
173	Undefined VFD Fault 173	
174	Undefined VFD Fault 174	
175	Undefined VFD Fault 175	
176	Undefined VFD Fault 176	
177	Undefined VFD Fault 177	
178	Undefined VFD Fault 178	
179	Undefined VFD Fault 179	
180	Undefined VFD Fault 180	
181	Undefined VFD Fault 181	
182	Undefined VFD Fault 182	
183	Undefined VFD Fault 183	
184	Undefined VFD Fault 184	
185	Undefined VFD Fault 185	
186	Undefined VFD Fault 186	
187	Undefined VFD Fault 187	
188	Undefined VFD Fault 188	
189	Undefined VFD Fault 189	
190	Undefined VFD Fault 190	
191	Undefined VFD Fault 191	
192	Undefined VFD Fault 192	
193	Undefined VFD Fault 193	
194	Undefined VFD Fault 194	
195	Undefined VFD Fault 195	
196	Undefined VFD Fault 196	

Code	Description	Notes
197	Undefined VFD Fault 197	
198	Undefined VFD Fault 198	
199	Undefined VFD Fault 199	
200	Undefined VFD Fault 200	
201	Undefined VFD Fault 201	
202	Undefined VFD Fault 202	
203	Undefined VFD Fault 203	
204	Undefined VFD Fault 204	
205	Undefined VFD Fault 205	
206	Undefined VFD Fault 206	
207	Undefined VFD Fault 207	
208	Undefined VFD Fault 208	
209	Undefined VFD Fault 209	
210	Undefined VFD Fault 210	
211	Undefined VFD Fault 211	
212	Undefined VFD Fault 212	
213	Undefined VFD Fault 213	
214	Undefined VFD Fault 214	
215	Undefined VFD Fault 215	
216	Undefined VFD Fault 216	
217	Undefined VFD Fault 217	
218	Undefined VFD Fault 218	
219	Undefined VFD Fault 219	
220	Undefined VFD Fault 220	
221	Undefined VFD Fault 221	
222	Undefined VFD Fault 222	
223	Undefined VFD Fault 223	
224	Undefined VFD Fault 224	
225	Undefined VFD Fault 225	
226	Undefined VFD Fault 226	
227	Undefined VFD Fault 227	
228	Undefined VFD Fault 228	
229	Undefined VFD Fault 229	
230	Undefined VFD Fault 230	
231	Undefined VFD Fault 231	
232	Undefined VFD Fault 232	
233	Undefined VFD Fault 233	
234	Undefined VFD Fault 234	
235	Undefined VFD Fault 235	
236	Undefined VFD Fault 236	
237	Undefined VFD Fault 237	
238	Undefined VFD Fault 238	
239	Undefined VFD Fault 239	
240	Undefined VFD Fault 240	
241	Undefined VFD Fault 241	
242	Undefined VFD Fault 242	
243	Undefined VFD Fault 243	
244	Undefined VFD Fault 244	
245	Undefined VFD Fault 245	
246	Undefined VFD Fault 246	

Code	Description	Notes
247	Undefined VFD Fault 247	
248	Undefined VFD Fault 248	
249	Undefined VFD Fault 249	
250	Undefined VFD Fault 250	
251	Undefined VFD Fault 251	
252	Undefined VFD Fault 252	
253	Undefined VFD Fault 253	
254	(Err) Simulated Fault	

Parameters (16-Bit Holding Registers) – Read/Write

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
3	SCADA Shutdown/Fault Reset	x		0	1	0 = Idle 1 = Reset	
4	RESERVED						
5	SCADA Pump Curve Generate Table	x		0	1	0 = Idle 1 = Generate Table	
500	Serial Port 1 SCADA Type	x		1	2	1 = RS-232 2 = RS-485	
501	Serial Port 1 SCADA Baud Rate	x	bps	1	5	1 = 9600 2 = 19200 3 = 38400 4 = 57800 5 = 115200	
502	Serial Port 1 SCADA Slave Address	x		1	255		
503	Serial Port 2 VFD Baud Rate	x	bps	1	3	1 = 9600 2 = 19200 3 = 38400	
504	Serial Port 2 VFD Slave Address	x		1	255		
505	Screensaver	x		1	3	1 = Disabled 2 = Blank 3 = Pictures	
506	Screensaver Timeout	x	Minutes	1	60		
507	Analog Input 1 Scale Minimum	x		-32768	32767		
508	Analog Input 1 Scale Maximum	x		-32768	32767		
509	Analog Input 1 Signal-Loss/Broken Fault	x		1	2	1 = Disabled 2 = Enabled	
510	Analog Input 1 High-High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
511	Analog Input 1 High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
512	Analog Input 1 Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
513	Analog Input 1 Low-Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
514	Analog Input 1 High-High Setpoint	x		-32768	32767		
515	Analog Input 1 High Setpoint	x		-32768	32767		
516	Analog Input 1 Low Setpoint	x		-32768	32767		
517	Analog Input 1 Low-Low Setpoint	x		-32768	32767		
518	Analog Input 1 Start Delay	x	Seconds	1	32767		
519	Analog Input 1 Detection Delay	x	Seconds	1	32767		
520	Analog Input 1 Restart Type	x		1	2	1 = Manual 2 = Timed	
521	Analog Input 1 Restart Delay	x	Minutes	1	32767		
522	RESERVED						
523	RESERVED						

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
524	Analog Input 2 Scale Minimum	x	PSI	-32768	32767		
525	Analog Input 2 Scale Maximum	x	PSI	-32768	32767		
526	Analog Input 2 Signal-Loss Broken Fault	x		1	2	1 = Disabled 2 = Enabled	
527	Analog Input 2 High-High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
528	Analog Input 2 High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
529	Analog Input 2 Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
530	Analog Input 2 Low-Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
531	Analog Input 2 High-High Setpoint	x	PSI	-32768	32767		
532	Analog Input 2 High Setpoint	x	PSI	-32768	32767		
533	Analog Input 2 Low Setpoint	x	PSI	-32768	32767		
534	Analog Input 2 Low-Low Setpoint	x	PSI	-32768	32767		
535	Analog Input 2 Start Delay	x	Seconds	1	32767		
536	Analog Input 2 Detection Delay	x	Seconds	1	32767		
537	Analog Input 2 Restart Type	x		1	2	1 = Manual 2 = Timed	
538	Analog Input 2 Restart Delay	x	Minutes	1	32767		
539	RESERVED						
540	RESERVED						
541	Analog Input 3 Scale Minimum	x.x		-3276.8	3276.7		
542	Analog Input 3 Maximum	x.x		-3276.8	3276.7		
543	Analog Input 3 Signal-Loss/Broken Fault	x		1	2	1 = Disabled 2 = Enabled	
544	Analog Input 3 High-High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
545	Analog Input 3 High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
546	Analog Input 3 Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
547	Analog Input 3 Low-Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
548	Analog Input 3 High-High Setpoint	x.x		-3276.8	3276.7		
549	Analog Input 3 High Setpoint	x.x		-3276.8	3276.7		
550	Analog Input 3 Low Setpoint	x.x		-3276.8	3276.7		
551	Analog Input 3 Low-Low Setpoint	x.x		-3276.8	3276.7		
552	Analog Input 3 Start Delay	x	Seconds	1	32767		
553	Analog Input 3 Detection Delay	x	Seconds	1	32767		
554	Analog Input 3 Restart Type	x		1	2	1 = Manual 2 = Timed	

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
555	Analog Input 3 Restart Delay	x	Minutes	1	32767		
556	RESERVED						
557	RESERVED						
558	Analog Input 4 Scale Minimum	x		-32768	32767		
559	Analog Input 4 Scale Maximum	x		-32768	32767		
560	Analog Input 4 Signal-Loss/Broken Fault	x		1	2	1 = Disabled 2 = Enabled	
561	Analog Input 4 High-High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
562	Analog Input 4 High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
563	Analog Input 4 Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
564	Analog Input 4 Low-Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
565	Analog Input 4 High-High Setpoint	x		-32768	32767		
566	Analog Input 4 High Setpoint	x		-32768	32767		
567	Analog Input 4 Low Setpoint	x		-32768	32767		
568	Analog Input 4 Low-Low Setpoint	x		-32768	32767		
569	Analog Input 4 Start Delay	x	Seconds	1	32767		
570	Analog Input 4 Detection Delay	x	Seconds	1	32767		
571	Analog Input 4 Restart Type	x		1	2	1 = Manual 2 = Timed	
572	Analog Input 4 Restart Delay	x	Minutes	1	32767		
573	RESERVED						
574	RESERVED						
575	Analog Input 5 Scale Minimum	x		-32768	32767		
576	Analog Input 5 Scale Maximum	x		-32768	32767		
577	Analog Input 5 Signal-Loss/Broken Fault	x		1	2	1 = Disabled 2 = Enabled	
578	Analog Input 5 High-High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
579	Analog Input 5 High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
580	Analog Input 5 Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
581	Analog Input 5 Low-Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
582	Analog Input 5 High-High Setpoint	x		-32768	32767		
583	Analog Input 5 High Setpoint	x		-32768	32767		
584	Analog Input 5 Low Setpoint	x		-32768	32767		
585	Analog Input 5 Low-Low Setpoint	x		-32768	32767		
586	Analog Input 5 Start Delay	x	Seconds	1	32767		

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
587	Analog Input 5 Detection Delay	x	Seconds	1	32767		
588	Analog Input 5 Restart Type	x		1	2	1 = Manual 2 = Timed	
589	Analog Input 5 Restart Delay	x	Minutes	1	32767		
590	RESERVED						
591	RESERVED						
592	Analog Input 6 Scale Minimum	x.xx		-327.68	327.67		
593	Analog Input 6 Scale Maximum	x.xx		-327.68	327.67		
594	Analog Input 6 Signal-Loss/Broken Fault	x		1	2	1 = Disabled 2 = Enabled	
595	Analog Input 6 High-High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
596	Analog Input 6 High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
597	Analog Input 6 Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
598	Analog Input 6 Low-Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
599	Analog Input 6 High-High Setpoint	x.xx		-327.68	327.67		
600	Analog Input 6 High Setpoint	x.xx		-327.68	327.67		
601	Analog Input 6 Low Setpoint	x.xx		-327.68	327.67		
602	Analog Input 6 Low-Low Setpoint	x.xx		-327.68	327.67		
603	Analog Input 6 Start Delay	x	Seconds	1	32767		
604	Analog Input 6 Detection Delay	x	Seconds	1	32767		
605	Analog Input 6 Restart Type	x		1	2	1 = Manual 2 = Timed	
606	Analog Input 6 Restart Delay	x	Minutes	1	32767		
607	RESERVED						
608	RESERVED						
609	RESERVED						
610	RESERVED						
611	Analog Input 7 Flow Signal-Loss/Broken Fault	x		1	2	1 = Disabled 2 = Enabled	
612	Analog Input 7 High-High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
613	Analog Input 7 High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
614	Analog Input 7 Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
615	Analog Input 7 Low-Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
616	RESERVED						
617	RESERVED						

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
618	RESERVED						
619	RESERVED						
620	Analog Input 7 Start Delay	x	Seconds	1	32767		
621	Analog Input 7 Detection Delay	x	Seconds	1	32767		
622	Analog Input 7 Restart Type	x		1	2	1 = Manual 2 = Timed	
623	Analog Input 7 Restart Delay	x	Minutes	1	32767		
624	RESERVED						
625	RESERVED						
626	RESERVED						
627	RESERVED						
628	Analog Input 8 Signal-Loss/Broken Fault	x		1	2	1 = Disabled 2 = Enabled	
629	Analog Input 8 High-High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
630	Analog Input 8 High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
631	Analog Input 8 Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
632	Analog Input 8 Low-Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
633	RESERVED						
634	RESERVED						
635	RESERVED						
636	RESERVED						
637	Analog Input 8 Start Delay	x	Seconds	1	32767		
638	Analog Input 8 Detection Delay	x	Seconds	1	32767		
639	Analog Input 8 Restart Type	x		1	2	1 = Manual 2 = Timed	
640	Analog Input 8 Restart Delay	x	Minutes	1	32767		
641	RESERVED						
642	RESERVED						
643	Analog Input 9 Scale Minimum	x.x	%	-3276.8	3276.7		
644	Analog Input 9 Scale Maximum	x.x	%	-3276.8	3276.7		
645	Analog Input 9 Signal-Loss/Broken Fault	x		1	2	1 = Disabled 2 = Enabled	
646	Analog Input 9 High-High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
647	Analog Input 9 High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
648	Analog Input 9 Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
649	Analog Input 9 Low-Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
650	Analog Input 9 High-High Setpoint	x.x	%	-3276.8	3276.7		
651	Analog Input 9 High Setpoint	x.x	%	-3276.8	3276.7		
652	Analog Input 9 Low Setpoint	x.x	%	-3276.8	3276.7		
653	Analog Input 9 Low-Low Setpoint	x.x	%	-3276.8	3276.7		
654	Analog Input 9 Start Delay	x	Seconds	1	32767		
655	Analog Input 9 Detection Delay	x	Seconds	1	32767		
656	Analog Input 9 Restart Type	x		1	2	1 = Manual 2 = Timed	
657	Analog Input 9 Restart Delay	x	Minutes	1	32767		
658	RESERVED						
659	RESERVED						
660	RESERVED						
661	RESERVED						
662	Analog Input 10/16 Signal-Loss/Broken Fault	x		1	2	1 = Disabled 2 = Enabled	
663	Analog Input 10/16 High-High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
664	Analog Input 10/16 High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
665	Analog Input 10/16 Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
666	Analog Input 10/16 Low-Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
667	Analog Input 10/16 High-High Setpoint	x.x	DegF	-3276.8	3276.7		
668	Analog Input 10/16 High Setpoint	x.x	DegF	-3276.8	3276.7		
669	Analog Input 10/16 Low Setpoint	x.x	DegF	-3276.8	3276.7		
670	Analog Input 10/16 Low-Low Setpoint	x.x	DegF	-3276.8	3276.7		
671	Analog Input 10/16 Start Delay	x	Seconds	1	32767		
672	Analog Input 10/16 Detection Delay	x	Seconds	1	32767		
673	Analog Input 10/16 Restart Type	x		1	2	1 = Manual 2 = Timed	
674	Analog Input 10/16 Restart Delay	x	Minutes	1	32767		
675	RESERVED						
676	RESERVED						
677	Analog Input 11 Scale Minimum	x.xx		-327.68	327.67		
678	Analog Input 11 Scale Maximum	x.xx		-327.68	327.67		
679	Analog Input 11 Signal-Loss/Broken Fault	x		1	2	1 = Disabled 2 = Enabled	
680	Analog Input 11 High-High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
681	Analog Input 11 High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
682	Analog Input 11 Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
683	Analog Input 11 Low-Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
684	Analog Input 11 High-High Setpoint	x.xx		-327.68	327.67		
685	Analog Input 11 High Setpoint	x.xx		-327.68	327.67		
686	Analog Input 11 Low Setpoint	x.xx		-327.68	327.67		
687	Analog Input 11 Low-Low Setpoint	x.xx		-327.68	327.67		
688	Analog Input 11 Start Delay	x	Seconds	1	32767		
689	Analog Input 11 Detection Delay	x	Seconds	1	32767		
690	Analog Input 11 Restart Type	x		1	2	1 = Manual 2 = Timed	
691	Analog Input 11 Restart Delay	x	Minutes	1	32767		
692	RESERVED						
693	RESERVED						
694	Analog Input 12 Scale Minimum	x.xx		-327.68	327.67		
695	Analog Input 12 Scale Maximum	x.xx		-327.68	327.67		
696	Analog Input 12 Signal-Loss/Broken Fault	x		1	2	1 = Disabled 2 = Enabled	
697	Analog Input 12 High-High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
698	Analog Input 12 High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
699	Analog Input 12 Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
700	Analog Input 12 Low-Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
701	Analog Input 12 High-High Setpoint	x.xx		-327.68	327.67		
702	Analog Input 12 High Setpoint	x.xx		-327.68	327.67		
703	Analog Input 12 Low Setpoint	x.xx		-327.68	327.67		
704	Analog Input 12 Low-Low Setpoint	x.xx		-327.68	327.67		
705	Analog Input 12 Start Delay	x	Seconds	1	32767		
706	Analog Input 12 Detection Delay	x	Seconds	1	32767		
707	Analog Input 12 Restart Type	x		1	2	1 = Manual 2 = Timed	
708	Analog Input 12 Restart Delay	x	Minutes	1	32767		
709	RESERVED						
710	RESERVED						
711	Analog Input 13 Scale Minimum	x.xx		-327.68	327.67		
712	Analog Input 13 Scale Maximum	x.xx		-327.68	327.67		
713	Analog Input 13 Signal-Loss/Broken Fault	x		1	2	1 = Disabled 2 = Enabled	
714	Analog Input 13 High-High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
715	Analog Input 13 High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
716	Analog Input 13 Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
717	Analog Input 13 Low-Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
718	Analog Input 13 High-High Setpoint	x.xx		-327.68	327.67		
719	Analog Input 13 High Setpoint	x.xx		-327.68	327.67		
720	Analog Input 13 Low Setpoint	x.xx		-327.68	327.67		
721	Analog Input 13 Low-Low Setpoint	x.xx		-327.68	327.67		
722	Analog Input 13 Start Delay	x	Seconds	1	32767		
723	Analog Input 13 Detection Delay	x	Seconds	1	32767		
724	Analog Input 13 Restart Type	x		1	2	1 = Manual 2 = Timed	
725	Analog Input 13 Restart Delay	x	Minutes	1	32767		
726	RESERVED						
727	RESERVED						
728	Analog Input 14 Scale Minimum	x.x		-3276.8	3276.7		
729	Analog Input 14 Scale Maximum	x.x		-3276.8	3276.7		
730	Analog Input 14 Signal-Loss/Broken Fault	x		1	2	1 = Disabled 2 = Enabled	
731	Analog Input 14 High-High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
732	Analog Input 14 High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
733	Analog Input 14 Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
734	Analog Input 14 Low-Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
735	Analog Input 14 High-High Setpoint	x.x		-3276.8	3276.7		
736	Analog Input 14 High Setpoint	x.x		-3276.8	3276.7		
737	Analog Input 14 Low Setpoint	x.x		-3276.8	3276.7		
738	Analog Input 14 Low-Low Setpoint	x.x		-3276.8	3276.7		
739	Analog Input 14 Start Delay	x	Seconds	1	32767		
740	Analog Input 14 Detection Delay	x	Seconds	1	32767		
741	Analog Input 14 Restart Type	x		1	2	1 = Manual 2 = Timed	
742	Analog Input 14 Restart Delay	x	Minutes	1	32767		
743	RESERVED						
744	RESERVED						
745	Analog Input 15 Scale Minimum	x.x		-3276.8	3276.7		
746	Analog Input 15 Scale Maximum	x.x		-3276.8	3276.7		
747	Analog Input 15 Signal-Loss/Broken Fault	x		1	2	1 = Disabled 2 = Enabled	

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
748	Analog Input 15 High-High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
749	Analog Input 15 High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
750	Analog Input 15 Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
751	Analog Input 15 Low-Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
752	Analog Input 15 High-High Setpoint	x.x		-3276.8	3276.7		
753	Analog Input 15 High Setpoint	x.x		-3276.8	3276.7		
754	Analog Input 15 Low Setpoint	x.x		-3276.8	3276.7		
755	Analog Input 15 Low-Low Setpoint	x.x		-3276.8	3276.7		
756	Analog Input 15 Start Delay	x	Seconds	1	32767		
757	Analog Input 15 Detection Delay	x	Seconds	1	32767		
758	Analog Input 15 Restart Type	x		1	2	1 = Manual 2 = Timed	
759	Analog Input 15 Restart Delay	x	Minutes	1	32767		
760	RESERVED						
761	RESERVED						
762	RESERVED						
763	RESERVED						
764	RESERVED						
765	RESERVED						
766	RESERVED						
767	RESERVED						
768	RESERVED						
769	RESERVED						
770	RESERVED						
771	RESERVED						
772	RESERVED						
773	RESERVED						
774	RESERVED						
775	RESERVED						
776	RESERVED						
777	RESERVED						
778	RESERVED						
779	RESERVED						
780	RESERVED						
781	Analog Input 17 Signal-Loss/Broken Fault	x		1	2	1 = Disabled 2 = Enabled	
782	Analog Input 17 High-High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
783	Analog Input 17 High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
784	Analog Input 17 Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
785	Analog Input 17 Low-Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
786	Analog Input 17 High-High Setpoint	x.x	DegF	-3276.8	3276.7		
787	Analog Input 17 High Setpoint	x.x	DegF	-3276.8	3276.7		
788	Analog Input 17 Low Setpoint	x.x	DegF	-3276.8	3276.7		
789	Analog Input 17 Low-Low Setpoint	x.x	DegF	-3276.8	3276.7		
790	Analog Input 17 Start Delay	x	Seconds	1	32767		
791	Analog Input 17 Detection Delay	x	Seconds	1	32767		
792	Analog Input 17 Restart Type	x		1	2	1 = Manual 2 = Timed	
793	Analog Input 17 Restart Delay	x	Minutes	1	32767		
794	RESERVED						
795	RESERVED						
796	RESERVED						
797	RESERVED						
798	Analog Input 18 Signal-Loss/Broken Fault	x		1	2	1 = Disabled 2 = Enabled	
799	Analog Input 18 High-High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
800	Analog Input 18 High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
801	Analog Input 18 Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
802	Analog Input 18 Low-Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
803	Analog Input 18 High-High Setpoint	x.x	DegF	-3276.8	3276.7		
804	Analog Input 18 High Setpoint	x.x	DegF	-3276.8	3276.7		
805	Analog Input 18 Low Setpoint	x.x	DegF	-3276.8	3276.7		
806	Analog Input 18 Low-Low Setpoint	x.x	DegF	-3276.8	3276.7		
807	Analog Input 18 Start Delay	x	Seconds	1	32767		
808	Analog Input 18 Detection Delay	x	Seconds	1	32767		
809	Analog Input 18 Restart Type	x		1	2	1 = Manual 2 = Timed	
810	Analog Input 18 Restart Delay	x	Minutes	1	32767		
811	RESERVED						
812	RESERVED						
813	RESERVED						
814	RESERVED						
815	Analog Input 19 Signal-Loss/Broken Fault	x		1	2	1 = Disabled 2 = Enabled	
816	Analog Input 19 High-High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
817	Analog Input 19 High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
818	Analog Input 19 Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
819	Analog Input 19 Low-Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
820	Analog Input 19 High-High Setpoint	x.x	DegF	-3276.8	3276.7		
821	Analog Input 19 High Setpoint	x.x	DegF	-3276.8	3276.7		
822	Analog Input 19 Low Setpoint	x.x	DegF	-3276.8	3276.7		
823	Analog Input 19 Low-Low Setpoint	x.x	DegF	-3276.8	3276.7		
824	Analog Input 19 Start Delay	x	Seconds	1	32767		
825	Analog Input 19 Detection Delay	x	Seconds	1	32767		
826	Analog Input 19 Restart Type	x		1	2	1 = Manual 2 = Timed	
827	Analog Input 19 Restart Delay	x	Minutes	1	32767		
828	RESERVED						
829	RESERVED						
830	RESERVED						
831	RESERVED						
832	Analog Input 20 Signal-Loss/Broken Fault	x		1	2	1 = Disabled 2 = Enabled	
833	Analog Input 20 High-High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
834	Analog Input 20 High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
835	Analog Input 20 Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
836	Analog Input 20 Low-Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
837	Analog Input 20 High-High Setpoint	x.x	DegF	-3276.8	3276.7		
838	Analog Input 20 High Setpoint	x.x	DegF	-3276.8	3276.7		
839	Analog Input 20 Low Setpoint	x.x	DegF	-3276.8	3276.7		
840	Analog Input 20 Low-Low Setpoint	x.x	DegF	-3276.8	3276.7		
841	Analog Input 20 Start Delay	x	Seconds	1	32767		
842	Analog Input 20 Detection Delay	x	Seconds	1	32767		
843	Analog Input 20 Restart Type	x		1	2	1 = Manual 2 = Timed	
844	Analog Input 20 Restart Delay	x	Minutes	1	32767		
845	RESERVED						
846	RESERVED						
847	RESERVED						
848	RESERVED						
849	Analog Input 21 Signal-Loss/Broken Fault	x		1	2	1 = Disabled 2 = Enabled	

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
850	Analog Input 21 High-High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
851	Analog Input 21 High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
852	Analog Input 21 Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
853	Analog Input 21 Low-Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
854	Analog Input 21 High-High Setpoint	x.x	DegF	-3276.8	3276.7		
855	Analog Input 21 High Setpoint	x.x	DegF	-3276.8	3276.7		
856	Analog Input 21 Low Setpoint	x.x	DegF	-3276.8	3276.7		
857	Analog Input 21 Low-Low Setpoint	x.x	DegF	-3276.8	3276.7		
858	Analog Input 21 Start Delay	x	Seconds	1	32767		
859	Analog Input 21 Detection Delay	x	Seconds	1	32767		
860	Analog Input 21 Restart Type	x		1	2	1 = Manual 2 = Timed	
861	Analog Input 21 Restart Delay	x	Minutes	1	32767		
862	RESERVED						
863	RESERVED						
864	RESERVED						
865	RESERVED						
866	Analog Input 22 Signal-Loss/Broken Fault	x		1	2	1 = Disabled 2 = Enabled	
867	Analog Input 22 High-High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
868	Analog Input 22 High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
869	Analog Input 22 Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
870	Analog Input 22 Low-Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
871	Analog Input 22 High-High Setpoint	x.x	DegF	-3276.8	3276.7		
872	Analog Input 22 High Setpoint	x.x	DegF	-3276.8	3276.7		
873	Analog Input 22 Low Setpoint	x.x	DegF	-3276.8	3276.7		
874	Analog Input 22 Low-Low Setpoint	x.x	DegF	-3276.8	3276.7		
875	Analog Input 22 Start Delay	x	Seconds	1	32767		
876	Analog Input 22 Detection Delay	x	Seconds	1	32767		
877	Analog Input 22 Restart Type	x		1	2	1 = Manual 2 = Timed	
878	Analog Input 22 Restart Delay	x	Minutes	1	32767		
879	RESERVED						
880	RESERVED						
881	RESERVED						

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
882	RESERVED						
883	Analog Input 23 Signal-Loss/Broken Fault	x		1	2	1 = Disabled 2 = Enabled	
884	Analog Input 23 High-High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
885	Analog Input 23 High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
886	Analog Input 23 Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
887	Analog Input 23 Low-Low Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
888	Analog Input 23 High-High Setpoint	x.x	DegF	-3276.8	3276.7		
889	Analog Input 23 High Setpoint	x.x	DegF	-3276.8	3276.7		
890	Analog Input 23 Low Setpoint	x.x	DegF	-3276.8	3276.7		
891	Analog Input 23 Low-Low Setpoint	x.x	DegF	-3276.8	3276.7		
892	Analog Input 23 Start Delay	x	Seconds	1	32767		
893	Analog Input 23 Detection Delay	x	Seconds	1	32767		
894	Analog Input 23 Restart Type	x		1	2	1 = Manual 2 = Timed	
895	Analog Input 23 Restart Delay	x	Minutes	1	32767		
896	RESERVED						
897	RESERVED						
898	Thrust Chamber Oil Temperature Source	x		1	2	1 = J-Type Thermocouple (AI10) 2 = RTD (AI16)	
899	Flow Source	x		1	2	1 = Analog (AI7) 2 = Calculated	
900	Filter Differential Pressure AI3 Rescale Minimum	x.x	PSI	-3276.8	3276.7		
901	Filter Differential Pressure AI3 Rescale Maximum	x.x	PSI	-3276.8	3276.7		
902	Filter Differential Pressure High-High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
903	Filter Differential Pressure High Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
904	Filter Differential Pressure High-High Setpoint	x.x	PSI	-3276.8	3276.7		
905	Filter Differential Pressure High Setpoint	x.x	PSI	-3276.8	3276.7		
906	Filter Differential Pressure Start Delay	x	Seconds	1	32767		
907	Filter Differential Pressure Detection Delay	x	Seconds	1	32767		
908	Filter Differential Pressure Restart Type	x		1	2	1 = Manual 2 = Timed	
909	Filter Differential Pressure Restart Delay	x	Minutes	1	32767		
910	RESERVED						
911	RESERVED						

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
912	Filter Differential Pressure Inlet Analog Input	x		1	5	1 = Analog Input 1 2 = Analog Input 3 3 = Analog Input 11 4 = Analog Input 12 5 = Analog Input 13 6 = Analog Input 14 7 = Analog Input 15	
913	Filter Differential Pressure Outlet Analog Input	x		1	5	1 = Analog Input 1 2 = Analog Input 3 3 = Analog Input 11 4 = Analog Input 12 5 = Analog Input 13 6 = Analog Input 14 7 = Analog Input 15	
914	Unlock Advanced Parameters Analog Inputs	x		1	2	1 = Disabled 2 = Enabled	Feature disabled.
915	Unlock Advanced Parameters Digital Inputs	x		1	2	1 = Disabled 2 = Enabled	Feature disabled.
916	Controller Ethernet IP Address 1	x		0	255		1st octet.
917	Controller Ethernet IP Address 2	x		0	255		2nd octet.
918	Controller Ethernet IP Address 3	x		0	255		3rd octet.
919	Controller Ethernet IP Address 4	x		0	255		4th octet.
920	Controller Ethernet Subnet Mask 1	x		0	255		1st octet.
921	Controller Ethernet Subnet Mask 2	x		0	255		2nd octet.
922	Controller Ethernet Subnet Mask 3	x		0	255		3rd octet.
923	Controller Ethernet Subnet Mask 4	x		0	255		4th octet.
924	Controller Ethernet Default Gateway 1	x		0	255		1st octet.
925	Controller Ethernet Default Gateway 2	x		0	255		2nd octet.
926	Controller Ethernet Default Gateway 3	x		0	255		3rd octet.
927	Controller Ethernet Default Gateway 4	x		0	255		4th octet.
928	Digital Input 1 Active When	x		1	2	1 = Contact Open 2 = Contact Closed	
929	Digital Input 1 Active Delay	x	Seconds	0	32767		
930	RESERVED						
931	RESERVED						
932	RESERVED						
933	RESERVED						
934	RESERVED						
935	RESERVED						
936	RESERVED						
937	Digital Input 2 Active When	x		1	2	1 = Contact Open 2 = Contact Closed	
938	Digital Input 2 Active Delay	x	Seconds	0	32767		
939	RESERVED						
940	RESERVED						
941	RESERVED						
942	RESERVED						
943	RESERVED						
944	RESERVED						
945	RESERVED						

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
946	Digital Input 3 Active When	x		1	2	1 = Contact Open 2 = Contact Closed	
947	Digital Input 3 Active Delay	x	Seconds	0	32767		
948	RESERVED						
949	RESERVED						
950	RESERVED						
951	RESERVED						
952	RESERVED						
953	RESERVED						
954	RESERVED						
955	Digital Input 4 Active When	x		1	2	1 = Contact Open 2 = Contact Closed	
956	Digital Input 4 Active Delay	x	Seconds	0	32767		
957	RESERVED						
958	RESERVED						
959	RESERVED						
960	RESERVED						
961	RESERVED						
962	RESERVED						
963	RESERVED						
964	Digital Input 5 Active When	x		1	2	1 = Contact Open 2 = Contact Closed	
965	Digital Input 5 Active Delay	x	Seconds	0	32767		
966	RESERVED						
967	RESERVED						
968	RESERVED						
969	RESERVED						
970	RESERVED						
971	RESERVED						
972	RESERVED						
973	Digital Input 6 Confirm When	x		1	2	1 = Contact Open 2 = Contact Closed	
974	Digital Input 6 Confirm Delay	x	Seconds	0	32767		
975	RESERVED						
976	RESERVED						
977	RESERVED						
978	RESERVED						
979	RESERVED						
980	RESERVED						
981	RESERVED						
982	Digital Input 7 Confirm When	x		1	2	1 = Contact Open 2 = Contact Closed	
983	Digital Input 7 Confirm Delay	x	Seconds	0	32767		
984	RESERVED						
985	RESERVED						
986	RESERVED						
987	RESERVED						
988	RESERVED						
989	RESERVED						
990	RESERVED						

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
991	Digital Input 8 Confirm When	x		1	2	1 = Contact Open 2 = Contact Closed	
992	Digital Input 8 Confirm Delay	x	Seconds	0	32767		
993	RESERVED						
994	RESERVED						
995	RESERVED						
996	RESERVED						
997	RESERVED						
998	RESERVED						
999	RESERVED						
1000	Digital Input 9 Confirm When	x		1	2	1 = Contact Open 2 = Contact Closed	
1001	Digital Input 9 Confirm Delay	x	Seconds	0	32767		
1002	RESERVED						
1003	RESERVED						
1004	RESERVED						
1005	RESERVED						
1006	RESERVED						
1007	RESERVED						
1008	RESERVED						
1009	Digital Input 10 Confirm When	x		1	2	1 = Contact Open 2 = Contact Closed	
1010	Digital Input 10 Confirm Delay	x	Seconds	0	32767		
1011	RESERVED						
1012	RESERVED						
1013	RESERVED						
1014	RESERVED						
1015	RESERVED						
1016	RESERVED						
1017	RESERVED						
1018	Digital Input 11 Active When	x		1	2	1 = Contact Open 2 = Contact Closed	
1019	Digital Input 11 Active Delay	x	Seconds	0	32767		
1020	Digital Input 11 Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
1021	Digital Input 11 Start Delay	x	Seconds	1	32767		
1022	Digital Input 11 Detection Delay	x	Seconds	1	32767		
1023	Digital Input 11 Restart Type	x		1	2	1 = Manual 2 = Timed	
1024	Digital Input 11 Restart Delay	x	Minutes	1	32767		
1025	RESERVED						
1026	RESERVED						
1027	Digital Input 12 Active When	x		1	2	1 = Contact Open 2 = Contact Closed	
1028	Digital Input 12 Active Delay	x	Seconds	0	32767		
1029	Digital Input 12 Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
1030	Digital Input 12 Start Delay	x	Seconds	1	32767		

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
1031	Digital Input 12 Detection Delay	x	Seconds	1	32767		
1032	Digital Input 12 Restart Type	x		1	2	1 = Manual 2 = Timed	
1033	Digital Input 12 Restart Delay	x	Minutes	1	32767		
1034	RESERVED						
1035	RESERVED						
1036	Digital Input 13 Active When	x		1	2	1 = Contact Open 2 = Contact Closed	
1037	Digital Input 13 Active Delay	x	Seconds	0	32767		
1038	Digital Input 13 Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
1039	Digital Input 13 Start Delay	x	Seconds	1	32767		
1040	Digital Input 13 Detection Delay	x	Seconds	1	32767		
1041	Digital Input 13 Restart Type	x		1	2	1 = Manual 2 = Timed	
1042	Digital Input 13 Restart Delay	x	Minutes	1	32767		
1043	RESERVED						
1044	RESERVED						
1045	Digital Input 14 Active When	x		1	2	1 = Contact Open 2 = Contact Closed	
1046	Digital Input 14 Active Delay	x	Seconds	0	32767		
1047	Digital Input 14 Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
1048	Digital Input 14 Start Delay	x	Seconds	1	32767		
1049	Digital Input 14 Detection Delay	x	Seconds	1	32767		
1050	Digital Input 14 Restart Type	x		1	2	1 = Manual 2 = Timed	
1051	Digital Input 14 Restart Delay	x	Minutes	1	32767		
1052	RESERVED						
1053	RESERVED						
1054	Digital Input 15 Active When	x		1	2	1 = Contact Open 2 = Contact Closed	
1055	Digital Input 15 Active Delay	x	Seconds	0	32767		
1056	Digital Input 15 Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
1057	Digital Input 15 Start Delay	x	Seconds	1	32767		
1058	Digital Input 15 Detection Delay	x	Seconds	1	32767		
1059	Digital Input 15 Restart Type	x		1	2	1 = Manual 2 = Timed	
1060	Digital Input 15 Restart Delay	x	Minutes	1	32767		
1061	RESERVED						
1062	RESERVED						
1063	Digital Input 16 Active When	x		1	2	1 = Contact Open 2 = Contact Closed	
1064	Digital Input 16 Active Delay	x	Seconds	0	32767		
1065	Digital Input 16 Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
1066	Digital Input 16 Start Delay	x	Seconds	1	32767		
1067	Digital Input 16 Detection Delay	x	Seconds	1	32767		
1068	Digital Input 16 Restart Type	x		1	2	1 = Manual 2 = Timed	
1069	Digital Input 16 Restart Delay	x	Minutes	1	32767		
1070	RESERVED						
1071	RESERVED						
1072	Variable Frequency Drive Maximum Speed	x.xx	Hz	25.00	120.00		
1073	Variable Frequency Drive Base Frequency	x.x	Hz	25.0	120.0		
1074	Variable Frequency Drive Maximum Voltage	x	Volts	160	500		
1075	Variable Frequency Drive Acceleration Time	x.x	Seconds	0	3000.0		
1076	Variable Frequency Drive Deceleration Time	x.x	Seconds	0	3000.0		
1077	Variable Frequency Drive Torque Boost	x.x	%	0	20.0		
1078	Variable Frequency Drive Overload	x.x	Amps	1.0	3000.0		
1079	Variable Frequency Drive Minimum Speed	x.xx	Hz	0.00	120.00		
1080	Variable Frequency Drive Carrier Frequency	x	kHz	1	10		
1081	Variable Frequency Drive Control Mode	x		1	2	1 = V/Hz 2 = Torque Vector	
1082	Variable Frequency Drive Current Limit	x		1	2	1 = Disabled 2 = Enabled	
1083	Variable Frequency Drive Current Limit Setpoint	x	Amps	1	3000		
1084	Variable Frequency Drive Stop Mode	x		1	2	1 = Decelerate 2 = Coast to Stop	
1085	Variable Frequency Drive Regen Mode	x		1	3	1 = Brake/Disabled 2 = Control by Torque 3 = Control by DC Bus	
1086	Variable Frequency Drive Regen Frequency	x.x	Hz	0	120.0		
1087	Motor Rated Speed	x	RPM	1	4	1 = 900 2 = 1200 3 = 1800 4 = 3600	
1088	Motor Rated Horsepower	x	HP	1	1000		
1089	Motor Full-Load Amps	x.x	Amps	1.0	3000.0		
1090	Pressure Control Valve Control Mode	x		1	2	1 = Manual Setpoint 2 = Auto Pump Curve	
1091	Pressure Control Valve Manual Setpoint	x	PSI	-32768	32767		
1092	Serial Port 2 VFD Ignore Communication Faults	x		1	2	1 = Disabled 2 = Enabled	
1093	Access Control Operator Password	x		0	9999		
1094	Access Control Supervisor Password	x		0	9999		
1095	Main Pump Start/Stop Source	x		1	6	1 = Analog Suction Pressure (AI1) 2 = Analog Discharge Pressure (AI2) 3 = Analog Tank Level (AI3) 4 = Maintained Contact Tank Level (DI4) 5 = Momentary Contact Tank Level (DI4/DI5)	
1096	Main Pump Speed Source	x		1	4	1 = Analog Suction Pressure (AI1) 2 = Analog Discharge Pressure (AI2) 3 = Analog Tank Level (AI3) 4 = User Manual Entry/Fixed Speed	
1097	Pump Curve Number of Stages	x		1	1000		

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
1098	Pump Curve Specific Gravity	x		0.001	2.000		
1099	Pump Curve 7-Point Point 1 Speed	x.xx	Hz	0.00	120.00		
1100	Pump Curve 7-Point Point 1 Discharge Pressure	x	PSI	0	32767		
1101	Pump Curve 7-Point Point 2 Speed	x.xx	Hz	0.00	120.00		
1102	Pump Curve 7-Point Point 2 Discharge Pressure	x	PSI	0	32767		
1103	Pump Curve 7-Point Point 3 Speed	x.xx	Hz	0.00	120.00		
1104	Pump Curve 7-Point Point 3 Discharge Pressure	x	PSI	0	32767		
1105	Pump Curve 7-Point Point 4 Speed	x.xx	Hz	0.00	120.00		
1106	Pump Curve 7-Point Point 4 Discharge Pressure	x	PSI	0	32767		
1107	Pump Curve 7-Point Point 5 Speed	x.xx	Hz	0.00	120.00		
1108	Pump Curve 7-Point Point 5 Discharge Pressure	x	PSI	0	32767		
1109	Pump Curve 7-Point Point 6 Speed	x.xx	Hz	0.00	120.00		
1110	Pump Curve 7-Point Point 6 Discharge Pressure	x	PSI	0	32767		
1111	Pump Curve 7-Point Point 7 Speed	x.xx	Hz	0.00	120.00		
1112	Pump Curve 7-Point Point 7 Discharge Pressure	x	PSI	0	32767		
1113	Pump Curve 7-Point Point 1 Tornado Plot Bounds Lower Pressure	x	PSI	0	32767		
1114	Pump Curve 7-Point Point 1 Tornado Plot Bounds Upper Pressure	x	PSI	0	32767		
1115	Pump Curve 7-Point Point 2 Tornado Plot Bounds Lower Pressure	x	PSI	0	32767		
1116	Pump Curve 7-Point Point 2 Tornado Plot Bounds Upper Pressure	x	PSI	0	32767		
1117	Pump Curve 7-Point Point 3 Tornado Plot Bounds Lower Pressure	x	PSI	0	32767		
1118	Pump Curve 7-Point Point 3 Tornado Plot Bounds Upper Pressure	x	PSI	0	32767		
1119	Pump Curve 7-Point Point 4 Tornado Plot Bounds Lower Pressure	x	PSI	0	32767		
1120	Pump Curve 7-Point Point 4 Tornado Plot Bounds Upper Pressure	x	PSI	0	32767		
1121	Pump Curve 7-Point Point 5 Tornado Plot Bounds Lower Pressure	x	PSI	0	32767		
1122	Pump Curve 7-Point Point 5 Tornado Plot Bounds Upper Pressure	x	PSI	0	32767		
1123	Pump Curve 7-Point Point 6 Tornado Plot Bounds Lower Pressure	x	PSI	0	32767		
1124	Pump Curve 7-Point Point 6 Tornado Plot Bounds Upper Pressure	x	PSI	0	32767		
1125	Pump Curve 7-Point Point 7 Tornado Plot Bounds Lower Pressure	x	PSI	0	32767		
1126	Pump Curve 7-Point Point 7 Tornado Plot Bounds Upper Pressure	x	PSI	0	32767		
1127	Support Pumps Charge Pump	x		1	2	1 = Disabled 2 = Enabled	
1128	Support Pumps Charge Pump Pre-Run Time	x	Seconds	30	32767		
1129	Support Pumps Thrust Chamber Oil Pump	x		1	2	1 = Disabled 2 = Enabled	
1130	Support Pumps Thrust Chamber Oil Pump Pre-Run Time	x	Seconds	30	32767		
1131	Support Pumps Thrust Chamber Oil Pump Post-Run Time	x	Seconds	30	32767		
1132	Main Pump Speed (Aix) Proportional Band	x.x	%	-3276.8	3276.7		

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
1133	Main Pump Speed (Aix) Integral Time	x	Seconds	-32768	32767		
1134	Main Pump Speed (Aix) Derivative Time	x	Seconds	-32768	32767		
1135	Pressure Control Valve Auto Proportional Band	x.x	%	-3276.8	3276.7		
1136	Pressure Control Valve Auto Integral Time	x	Seconds	-32768	32767		
1137	Pressure Control Valve Auto Derivative Time	x	Seconds	-32768	32767		
1138	Pressure Control Valve Travel Time	x	Seconds	1	30000		
1139	Pressure Control Valve Stabilization Time	x	Seconds	1	30000		
1140	Pressure Control Valve Start Position	x.x	%	0.0	100.0		
1141	SD Card Logging Log When	x		1	2	1 = Always 2 = Running Only	
1142	SD Card Logging Logging Interval	x	Seconds	1	3600		
1143	Main Pump User Start	x		1	2	1 = Disabled 2 = Enabled	
1144	Block Valve Control Mode	x		1	2	1 = Disabled 2 = Run Sequence 3 = Independent	
1145	Block Valve Travel Time	x	Seconds	1	30000		
1146	(AO1) Pressure Control Valve Position Full Open (100%)	x		1	2	1 = 4 mA 2 = 20 mA	
1147	Main Pump Speed Mismatch Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
1148	Pressure Control Valve Out of Curve Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
1149	Pressure Control Valve Failed to Control Pressure Reaction	x		1	3	1 = Disabled 2 = Alarm 3 = Shutdown	
1150	RESERVED						
1151	Main Pump Speed OptiMode	x		1	2	1 = Disabled 2 = Enabled	
1152	Pressure Control Valve Position Feedback	x		1	4	1 = Disabled 2 = Analog (AI9) 3 = Digital (DI8) 4 = Both (AI9/DI8)	
1153	Pump Curve 7-Point Auto-Bounds Range	x	%	1	100		
1154	Pump Curve Upper Tolerance	x	%	0.1	100.0		
1155	Pump Curve Lower Tolerance	x	%	0.1	100.0		
1156	Digital Input 16 Function	x		1	2	1 = General Purpose 2 = Reset	
1157	Home Screen	x		1	2	1 = Tank 2 = Booster	
1158	Pressure Control Valve Manual Position Setpoint	x.x	%	0.0	100.0		
1159	Variable Frequency Drive Ethernet IP Address 1	x		0	255		1st octet.
1160	Variable Frequency Drive Ethernet IP Address 2	x		0	255		2nd octet.
1161	Variable Frequency Drive Ethernet IP Address 3	x		0	255		3rd octet.
1162	Variable Frequency Drive Ethernet IP Address 4	x		0	255		4th octet.
1163	Block Valve Operate When HOA	x		1	2	1 = Hand/Auto 2 = Hand/Off/Auto	
1164	Block Valve Operate During Shutdown/Fault	x		1	2	1 = Disabled 2 = Enabled	

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
1165	Block Valve Open Conditions	x		1	2	1 = All Met 2 = Any Met	
1166	Block Valve Opened Reaction	x		1	2	1 = Disabled 2 = Alarm	
1167	Block Valve Open Source 1	x		1	10	1 = None 2 = Analog Input 1 3 = Analog Input 2 4 = Analog Input 3 5 = Analog Input 4 6 = Analog Input 5 7 = Analog Input 11 8 = Analog Input 12 9 = Analog Input 13 10 = Analog Input 14 11 = Analog Input 15 12 = Digital Input 13 13 = Digital Input 14 14 = Digital Input 15 15 = Digital Input 16	
1168	Block Valve When To Open 1	x		1	2	1 = Equal or Greater 2 = Equal or Less	
1169	Block Valve Open Source 2	x		1	10	1 = None 2 = Analog Input 1 3 = Analog Input 2 4 = Analog Input 3 5 = Analog Input 4 6 = Analog Input 5 7 = Analog Input 11 8 = Analog Input 12 9 = Analog Input 13 10 = Analog Input 14 11 = Analog Input 15 12 = Digital Input 13 13 = Digital Input 14 14 = Digital Input 15 15 = Digital Input 16	
1170	Block Valve When To Open 2	x		1	2	1 = Equal or Greater 2 = Equal or Less	

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
1171	Block Valve Open Source 3	x		1	10	1 = None 2 = Analog Input 1 3 = Analog Input 2 4 = Analog Input 3 5 = Analog Input 4 6 = Analog Input 5 7 = Analog Input 11 8 = Analog Input 12 9 = Analog Input 13 10 = Analog Input 14 11 = Analog Input 15 12 = Digital Input 13 13 = Digital Input 14 14 = Digital Input 15 15 = Digital Input 16	
1172	Block Valve When To Open 3	x		1	2	1 = Equal or Greater 2 = Equal or Less	
1173	Block Valve Open Source 4	x		1	10	1 = None 2 = Analog Input 1 3 = Analog Input 2 4 = Analog Input 3 5 = Analog Input 4 6 = Analog Input 5 7 = Analog Input 11 8 = Analog Input 12 9 = Analog Input 13 10 = Analog Input 14 11 = Analog Input 15 12 = Digital Input 13 13 = Digital Input 14 14 = Digital Input 15 15 = Digital Input 16	
1174	Block Valve When To Open 4	x		1	2	1 = Equal or Greater 2 = Equal or Less	
1175	Block Valve Close Conditions	x		1	2	1 = All Met 2 = Any Met	
1176	Block Valve Closed Reaction	x		1	2	1 = Disabled 2 = Alarm	

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
1177	Block Valve Close Source 1	x		1	10	1 = None 2 = Analog Input 1 3 = Analog Input 2 4 = Analog Input 3 5 = Analog Input 4 6 = Analog Input 5 7 = Analog Input 11 8 = Analog Input 12 9 = Analog Input 13 10 = Analog Input 14 11 = Analog Input 15 12 = Digital Input 13 13 = Digital Input 14 14 = Digital Input 15 15 = Digital Input 16	
1178	Block Valve When To Close 1	x		1	2	1 = Equal or Greater 2 = Equal or Less	
1179	Block Valve Close Source 2	x		1	10	1 = None 2 = Analog Input 1 3 = Analog Input 2 4 = Analog Input 3 5 = Analog Input 4 6 = Analog Input 5 7 = Analog Input 11 8 = Analog Input 12 9 = Analog Input 13 10 = Analog Input 14 11 = Analog Input 15 12 = Digital Input 13 13 = Digital Input 14 14 = Digital Input 15 15 = Digital Input 16	
1180	Block Valve When To Close 2	x		1	2	1 = Equal or Greater 2 = Equal or Less	
1181	Block Valve Close Source 3	x		1	10	1 = None 2 = Analog Input 1 3 = Analog Input 2 4 = Analog Input 3 5 = Analog Input 4 6 = Analog Input 5 7 = Analog Input 11 8 = Analog Input 12 9 = Analog Input 13 10 = Analog Input 14 11 = Analog Input 15 12 = Digital Input 13 13 = Digital Input 14 14 = Digital Input 15 15 = Digital Input 16	
1182	Block Valve When To Close 3	x		1	2	1 = Equal or Greater 2 = Equal or Less	

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
1183	Block Valve Close Source 4	x		1	10	1 = None 2 = Analog Input 1 3 = Analog Input 2 4 = Analog Input 3 5 = Analog Input 4 6 = Analog Input 5 7 = Analog Input 11 8 = Analog Input 12 9 = Analog Input 13 10 = Analog Input 14 11 = Analog Input 15 12 = Digital Input 13 13 = Digital Input 14 14 = Digital Input 15 15 = Digital Input 16	
1184	Block Valve When To Close 4	x		1	2	1 = Equal or Greater 2 = Equal or Less	
1185	(AO2) Multipurpose Block Valve Position Full Open (100%)	x		1	2	1 = 4 mA 2 = 20 mA	
1186	Equipment Stabilization Time	x	Secs	1	60		
1187	(AO2) Multipurpose Function	x		1	3	1 = Block Valve Position 2 = Retransmit Analog Input 3 = Reference Command	
1188	(AO2) Retransmit Analog Input	x		1	23	1 = Analog Input 1 2 = Analog Input 2 3 = Analog Input 3 4 = Analog Input 4 5 = Analog Input 5 6 = Analog Input 6 7 = Analog Input 7 8 = Analog Input 8 9 = Analog Input 9 10 = Analog Input 10 11 = Analog Input 11 12 = Analog Input 12 13 = Analog Input 13 14 = Analog Input 14 15 = Analog Input 15 16 = Analog Input 16 17 = Analog Input 17 18 = Analog Input 18 19 = Analog Input 19 20 = Analog Input 20 21 = Analog Input 21 22 = Analog Input 22 23 = Analog Input 23	
1189	Maintenance Reminder 1 Run-Time Hours	x	Hrs	1	32767		
1190	Maintenance Reminder 1 Day of Month	x		1	31		
1191	Maintenance Reminder 2 Run-Time Hours	x	Hrs	1	32767		
1192	Maintenance Reminder 2 Day of Month	x		1	31		
1193	Maintenance Reminder 3 Run-Time Hours	x	Hrs	1	32767		
1194	Maintenance Reminder 3 Day of Month	x		1	31		

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
1195	Maintenance Reminder 4 Run-Time Hours	x	Hrs	1	32767		
1196	Maintenance Reminder 4 Day of Month	x		1	31		
1197	Maintenance Reminder 5 Run-Time Hours	x	Hrs	1	32767		
1198	Maintenance Reminder 5 Day of Month	x		1	31		
1199	Maintenance Reminder 6 Run-Time Hours	x	Hrs	1	32767		
1200	Maintenance Reminder 6 Day of Month	x		1	31		
1201	Maintenance Reminder 7 Run-Time Hours	x	Hrs	1	32767		
1202	Maintenance Reminder 7 Day of Month	x		1	31		
1203	Maintenance Reminder 8 Run-Time Hours	x	Hrs	1	32767		
1204	Maintenance Reminder 8 Day of Month	x		1	31		
1205	Maintenance Reminder 9 Run-Time Hours	x	Hrs	1	32767		
1206	Maintenance Reminder 9 Day of Month	x		1	31		
1207	Maintenance Reminder 10 Run-Time Hours	x	Hrs	1	32767		
1208	Maintenance Reminder 10 Day of Month	x		1	31		
1209	RESERVED						
1210	RESERVED						
1211	Analog Input 3 Tank Status	x		0	7	1 = Disabled 2 = Tank 1 3 = Tank 2 4 = Tank 3 5 = Tank 4 6 = Tank 5 7 = Tank 6	
1212	Analog Input 4 Tank Status	x		0	7	1 = Disabled 2 = Tank 1 3 = Tank 2 4 = Tank 3 5 = Tank 4 6 = Tank 5 7 = Tank 6	
1213	Analog Input 5 Tank Status	x		0	7	1 = Disabled 2 = Tank 1 3 = Tank 2 4 = Tank 3 5 = Tank 4 6 = Tank 5 7 = Tank 6	
1214	RESERVED						
1215	RESERVED						
1216	RESERVED						
1217	RESERVED						
1218	RESERVED						
1219	Analog Input 11 Tank Status	x		0	7	1 = Disabled 2 = Tank 1 3 = Tank 2 4 = Tank 3 5 = Tank 4 6 = Tank 5 7 = Tank 6	

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
1220	Analog Input 12 Tank Status	x		0	7	1 = Disabled 2 = Tank 1 3 = Tank 2 4 = Tank 3 5 = Tank 4 6 = Tank 5 7 = Tank 6	
1221	Analog Input 13 Tank Status	x		0	7	1 = Disabled 2 = Tank 1 3 = Tank 2 4 = Tank 3 5 = Tank 4 6 = Tank 5 7 = Tank 6	
1222	Analog Input 14 Tank Status	x		0	7	1 = Disabled 2 = Tank 1 3 = Tank 2 4 = Tank 3 5 = Tank 4 6 = Tank 5 7 = Tank 6	
1223	Analog Input 15 Tank Status	x		0	7	1 = Disabled 2 = Tank 1 3 = Tank 2 4 = Tank 3 5 = Tank 4 6 = Tank 5 7 = Tank 6	
1224	RESERVED						
1225	RESERVED						
1226	RESERVED						
1227	RESERVED						
1228	RESERVED						
1229	RESERVED						
1230	RESERVED						
1231	RESERVED						
1232	Support Pumps Charge Pump Post-Run Time	x	Seconds	30	32767		
1233	VFD Thermal Warning	x		1	3	1 = Disabled 2 = Alarm 3 = Alarm & Message	
1234	VFD Thermal Warning Threshold	x	%	1	100		
1235	Analog Input 8 Flow Totalizer	x		1	2	1 = Disabled 2 = Enabled	
1250	Site Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1261	Analog Input 1 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1272	Analog Input 1 Units	x	Chars		5		Up to 5 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
1276	Analog Input 2 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1287	Analog Input 2 Units	x	Chars		5		Up to 5 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1291	Analog Input 3 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1302	Analog Input 3 Units	x	Chars		5		Up to 5 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1306	Analog Input 4 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1317	Analog Input 4 Units	x	Chars		5		Up to 5 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1321	Analog Input 5 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1332	Analog Input 5 Units	x	Chars		5		Up to 5 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1336	Analog Input 6 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1347	Analog Input 6 Units	x	Chars		5		Up to 5 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1351	Analog Input 7 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1362	Analog Input 7 Units	x	Chars		5		Up to 5 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1366	Analog Input 8 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1377	Analog Input 8 Units	x	Chars		5		Up to 5 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1381	Analog Input 9 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1392	Analog Input 9 Units	x	Chars		5		Up to 5 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1396	Analog Input 10/16 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
1407	Analog Input 10/16 Units	x	Chars		5		Up to 5 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1411	Analog Input 11 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1422	Analog Input 11 Units	x	Chars		5		Up to 5 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1426	Analog Input 12 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1437	Analog Input 12 Units	x	Chars		5		Up to 5 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1441	Analog Input 13 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1452	Analog Input 13 Units	x	Chars		5		Up to 5 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1456	Analog Input 14 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1467	Analog Input 14 Units	x	Chars		5		Up to 5 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1471	Analog Input 15 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1482	Analog Input 15 Units	x	Chars		5		Up to 5 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1501	Analog Input 17 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1512	Analog Input 17 Units	x	Chars		5		Up to 5 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1516	Analog Input 18 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1527	Analog Input 18 Units	x	Chars		5		Up to 5 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1531	Analog Input 19 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1542	Analog Input 19 Units	x	Chars		5		Up to 5 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
1546	Analog Input 20 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1557	Analog Input 20 Units	x	Chars		5		Up to 5 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1561	Analog Input 21 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1572	Analog Input 21 Units	x	Chars		5		Up to 5 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1576	Analog Input 22 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1587	Analog Input 22 Units	x	Chars		5		Up to 5 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1591	Analog Input 23 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1602	Analog Input 23 Units	x	Chars		5		Up to 5 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1606	Digital Input 1 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1617	Digital Input 2 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1628	Digital Input 3 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1639	Digital Input 4 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1650	Digital Input 5 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1661	Digital Input 6 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1672	Digital Input 7 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1683	Digital Input 8 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1694	Digital Input 9 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
1705	Digital Input 10 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1716	Digital Input 11 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1727	Digital Input 12 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1738	Digital Input 13 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1749	Digital Input 14 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1760	Digital Input 15 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.
1771	Digital Input 16 Name	x	Chars		20		Up to 20 ASCII characters. 2 characters per 16-bit register. Be sure to include null terminator.

Parameters (32-Bit Holding Registers) – Read/Write

Address	Description	Scaling	Units	Minimum	Maximum	Values	Notes
28722	Analog Input 7 Scale Minimum	x	BPD	-999999	999999		
28723	Analog Input 7 Scale Maximum	x	BPD	-999999	999999		
28724	Analog Input 7 High-High Setpoint	x	BPD	-999999	999999		
28725	Analog Input 7 High Setpoint	x	BPD	-999999	999999		
28726	Analog Input 7 Low Setpoint	x	BPD	-999999	999999		
28727	Analog Input 7 Low-Low Setpoint	x	BPD	-999999	999999		
28728	Analog Input 8 Scale Minimum	x		-999999	999999		
28729	Analog Input 8 Scale Maximum	x		-999999	999999		
28730	Analog Input 8 High-High Setpoint	x		-999999	999999		
28731	Analog Input 8 High Setpoint	x		-999999	999999		
28732	Analog Input 8 Low Setpoint	x		-999999	999999		
28733	Analog Input 8 Low-Low Setpoint	x		-999999	999999		
28734	Main Pump Start/Stop Start Setpoint	x.x		-214748364.8	214748364.8		
28735	Main Pump Start/Stop Stop Setpoint	x.x		-214748364.8	214748364.8		
28736	Main Pump Speed Maintain Setpoint	x.x		-214748364.8	214748364.8		
28737	Main Pump Speed Fixed Speed	x.xx	Hz	0.00	120.00		
28738	Pump Curve 7-Point Point 1 Flow	x	BPD	0	999999		
28739	Pump Curve 7-Point Point 2 Flow	x	BPD	0	999999		
28740	Pump Curve 7-Point Point 3 Flow	x	BPD	0	999999		
28741	Pump Curve 7-Point Point 4 Flow	x	BPD	0	999999		
28742	Pump Curve 7-Point Point 5 Flow	x	BPD	0	999999		
28743	Pump Curve 7-Point Point 6 Flow	x	BPD	0	999999		
28744	Pump Curve 7-Point Point 7 Flow	x	BPD	0	999999		
28745	Pump Curve 7-Point Point 1 Tornado Plot Bounds Lower Flow	x	BPD	0	999999		
28746	Pump Curve 7-Point Point 1 Tornado Plot Bounds Upper Flow	x	BPD	0	999999		
28747	Pump Curve 7-Point Point 2 Tornado Plot Bounds Lower Flow	x	BPD	0	999999		
28748	Pump Curve 7-Point Point 2 Tornado Plot Bounds Upper Flow	x	BPD	0	999999		
28749	Pump Curve 7-Point Point 3 Tornado Plot Bounds Lower Flow	x	BPD	0	999999		
28750	Pump Curve 7-Point Point 3 Tornado Plot Bounds Upper Flow	x	BPD	0	999999		
28751	Pump Curve 7-Point Point 4 Tornado Plot Bounds Lower Flow	x	BPD	0	999999		
28752	Pump Curve 7-Point Point 4 Tornado Plot Bounds Upper Flow	x	BPD	0	999999		
28753	Pump Curve 7-Point Point 5 Tornado Plot Bounds Lower Flow	x	BPD	0	999999		
28754	Pump Curve 7-Point Point 5 Tornado Plot Bounds Upper Flow	x	BPD	0	999999		
28755	Pump Curve 7-Point Point 6 Tornado Plot Bounds Lower Flow	x	BPD	0	999999		
28756	Pump Curve 7-Point Point 6 Tornado Plot Bounds Upper Flow	x	BPD	0	999999		
28757	Pump Curve 7-Point Point 7 Tornado Plot Bounds Lower Flow	x	BPD	0	999999		
28758	Pump Curve 7-Point Point 7 Tornado Plot Bounds Upper Flow	x	BPD	0	999999		
28759	Block Valve Open Setpoint 1	x.x		-214748364.8	214748364.8		
28760	Block Valve Open Setpoint 2	x.x		-214748364.8	214748364.8		
28761	Block Valve Open Setpoint 3	x.x		-214748364.8	214748364.8		
28762	Block Valve Open Setpoint 4	x.x		-214748364.8	214748364.8		
28763	Block Valve Close Setpoint 1	x.x		-214748364.8	214748364.8		
28764	Block Valve Close Setpoint 2	x.x		-214748364.8	214748364.8		
28765	Block Valve Close Setpoint 3	x.x		-214748364.8	214748364.8		
28766	Block Valve Close Setpoint 4	x.x		-214748364.8	214748364.8		

Parameters (Bits/Coils) – Read/Write

Address	Description	Notes
160	Maintenance Reminder 1 Reset	Resets Maintenance Reminder 1. If Maintenance Reminder 1 Frequency set to Run-Time, will reset the countdown Timer, even if the reminder is not active.
161	Maintenance Reminder 2 Reset	Resets Maintenance Reminder 2. If Maintenance Reminder 1 Frequency set to Run-Time, will reset the countdown Timer, even if the reminder is not active.
162	Maintenance Reminder 3 Reset	Resets Maintenance Reminder 3. If Maintenance Reminder 1 Frequency set to Run-Time, will reset the countdown Timer, even if the reminder is not active.
163	Maintenance Reminder 4 Reset	Resets Maintenance Reminder 4. If Maintenance Reminder 1 Frequency set to Run-Time, will reset the countdown Timer, even if the reminder is not active.
164	Maintenance Reminder 5 Reset	Resets Maintenance Reminder 5. If Maintenance Reminder 1 Frequency set to Run-Time, will reset the countdown Timer, even if the reminder is not active.
165	Maintenance Reminder 6 Reset	Resets Maintenance Reminder 6. If Maintenance Reminder 1 Frequency set to Run-Time, will reset the countdown Timer, even if the reminder is not active.
166	Maintenance Reminder 7 Reset	Resets Maintenance Reminder 7. If Maintenance Reminder 1 Frequency set to Run-Time, will reset the countdown Timer, even if the reminder is not active.
167	Maintenance Reminder 8 Reset	Resets Maintenance Reminder 8. If Maintenance Reminder 1 Frequency set to Run-Time, will reset the countdown Timer, even if the reminder is not active.
168	Maintenance Reminder 9 Reset	Resets Maintenance Reminder 9. If Maintenance Reminder 1 Frequency set to Run-Time, will reset the countdown Timer, even if the reminder is not active.
169	Maintenance Reminder 10 Reset	Resets Maintenance Reminder 10. If Maintenance Reminder 1 Frequency set to Run-Time, will reset the countdown Timer, even if the reminder is not active.
500	Trends Plot Curve 1 None	Selects data for plotting as Curve 1 on Trends screen. Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
501	Trends Plot Curve 1 Speed	
502	Trends Plot Curve 1 Voltage	
503	Trends Plot Curve 1 Current	
504	Trends Plot Curve 1 Torque	
505	Trends Plot Curve 1 Horsepower	
506	Trends Plot Curve 1 Analog Input 1	
507	Trends Plot Curve 1 Analog Input 2	
508	Trends Plot Curve 1 Analog Input 4	
509	Trends Plot Curve 1 Analog Input 5	
510	Trends Plot Curve 2 None	Selects data for plotting as Curve 2 on Trends screen. Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
511	Trends Plot Curve 2 Speed	
512	Trends Plot Curve 2 Voltage	
513	Trends Plot Curve 2 Current	
514	Trends Plot Curve 2 Torque	
515	Trends Plot Curve 2 Horsepower	
516	Trends Plot Curve 2 Analog Input 1	
517	Trends Plot Curve 2 Analog Input 2	
518	Trends Plot Curve 2 Analog Input 4	
519	Trends Plot Curve 2 Analog Input 5	
520	Trends Plot Curve 3 None	Selects data for plotting as Curve 3 on Trends screen. Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
521	Trends Plot Curve 3 Analog Input 3	
522	Trends Plot Curve 3 Analog Input 7	
523	Trends Plot Curve 3 Analog Input 8	
524	Trends Plot Curve 3 Analog Input 9	
525	Trends Plot Curve 3 Analog Input 10/16	
526	Trends Plot Curve 3 Analog Input 14	
527	Trends Plot Curve 3 Analog Input 15	

Address	Description	Notes
528	Trends Plot Curve 3 Analog Input 17	
529	Trends Plot Curve 3 Analog Input 18	
530	Trends Plot Curve 3 Analog Input 19	
531	Trends Plot Curve 3 Analog Input 20	
532	Trends Plot Curve 3 Analog Input 21	
533	Trends Plot Curve 3 Analog Input 22	
534	Trends Plot Curve 3 Analog Input 23	
535	RESERVED	Selects data for plotting as Curve 4 on Trends screen. Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
536	Trends Plot Curve 4 None	
537	Trends Plot Curve 4 Analog Input 3	
538	Trends Plot Curve 4 Analog Input 7	
539	Trends Plot Curve 4 Analog Input 8	
540	Trends Plot Curve 4 Analog Input 9	
541	Trends Plot Curve 4 Analog Input 10/16	
542	Trends Plot Curve 4 Analog Input 14	
543	Trends Plot Curve 4 Analog Input 15	
544	Trends Plot Curve 4 Analog Input 17	
545	Trends Plot Curve 4 Analog Input 18	
546	Trends Plot Curve 4 Analog Input 19	
547	Trends Plot Curve 4 Analog Input 20	
548	Trends Plot Curve 4 Analog Input 21	
549	Trends Plot Curve 4 Analog Input 22	
550	Trends Plot Curve 4 Analog Input 23	
551	RESERVED	Selects data for plotting as Curve 5 on Trends screen. Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
552	Trends Plot Curve 5 None	
553	Trends Plot Curve 5 Analog Input 6	
554	Trends Plot Curve 5 Analog Input 11	
555	Trends Plot Curve 5 Analog Input 12	
556	Trends Plot Curve 5 Analog Input 13	
557	RESERVED	
558	RESERVED	
559	RESERVED	
560	RESERVED	
561	RESERVED	
562	RESERVED	
563	RESERVED	
564	RESERVED	
565	RESERVED	
566	RESERVED	
567	RESERVED	Selects data for plotting as Curve 6 on Trends screen. Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
568	Trends Plot Curve 6 None	
569	Trends Plot Curve 6 Analog Input 6	
570	Trends Plot Curve 6 Analog Input 11	
571	Trends Plot Curve 6 Analog Input 12	
572	Trends Plot Curve 6 Analog Input 13	
573	RESERVED	Selects the pump curve profile type. Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
574	Pump Curve Profile Type Custom Coefficients	
575	Pump Curve Profile Type Custom 7-Point	
576	RESERVED	
577	RESERVED	RESERVED. Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.

Address	Description	Notes
578	RESERVED	
579	RESERVED	
580	RESERVED	
581	RESERVED	
582	RESERVED	
583	RESERVED	
584	RESERVED	
585	RESERVED	
586	RESERVED	
587	RESERVED	
588	RESERVED	
589	RESERVED	
590	RESERVED	
591	RESERVED	
592	RESERVED	
600	Pressure Control Valve Control Mode Auto Pump Curve	Selects the pressure control valve control mode.
601	Pressure Control Valve Control Mode Manual Pressure	Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
602	Pressure Control Valve Control Mode Manual Position	
610	Maintenance Reminder 1 Frequency Disabled	Selects the maintenance reminder frequency.
611	Maintenance Reminder 1 Frequency Run-Time	Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
612	Maintenance Reminder 1 Frequency Monthly	
613	Maintenance Reminder 1 Run-Time Source Panel	Selects the maintenance reminder run-time source.
614	Maintenance Reminder 1 Run-Time Source Main Pump	Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
615	Maintenance Reminder 1 Run-Time Source Charge Pump	
616	Maintenance Reminder 1 Run-Time Source Thrst Chmbr Oil Pump	
617	Maintenance Reminder 2 Frequency Disabled	Selects the maintenance reminder frequency.
618	Maintenance Reminder 2 Frequency Run-Time	Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
619	Maintenance Reminder 2 Frequency Monthly	
620	Maintenance Reminder 2 Run-Time Source Panel	Selects the maintenance reminder run-time source.
621	Maintenance Reminder 2 Run-Time Source Main Pump	Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
622	Maintenance Reminder 2 Run-Time Source Charge Pump	
623	Maintenance Reminder 2 Run-Time Source Thrst Chmbr Oil Pump	
624	Maintenance Reminder 3 Frequency Disabled	Selects the maintenance reminder frequency.
625	Maintenance Reminder 3 Frequency Run-Time	Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
626	Maintenance Reminder 3 Frequency Monthly	
627	Maintenance Reminder 3 Run-Time Source Panel	Selects the maintenance reminder run-time source.
628	Maintenance Reminder 3 Run-Time Source Main Pump	Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
629	Maintenance Reminder 3 Run-Time Source Charge Pump	
630	Maintenance Reminder 3 Run-Time Source Thrst Chmbr Oil Pump	
631	Maintenance Reminder 4 Frequency Disabled	Selects the maintenance reminder frequency.
632	Maintenance Reminder 4 Frequency Run-Time	Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
633	Maintenance Reminder 4 Frequency Monthly	
634	Maintenance Reminder 4 Run-Time Source Panel	Selects the maintenance reminder run-time source.
635	Maintenance Reminder 4 Run-Time Source Main Pump	Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
636	Maintenance Reminder 4 Run-Time Source Charge Pump	
637	Maintenance Reminder 4 Run-Time Source Thrst Chmbr Oil Pump	
638	Maintenance Reminder 5 Frequency Disabled	Selects the maintenance reminder frequency.
639	Maintenance Reminder 5 Frequency Run-Time	Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
640	Maintenance Reminder 5 Frequency Monthly	
641	Maintenance Reminder 5 Run-Time Source Panel	Selects the maintenance reminder run-time source.

Address	Description	Notes
642	Maintenance Reminder 5 Run-Time Source Main Pump	Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
643	Maintenance Reminder 5 Run-Time Source Charge Pump	
644	Maintenance Reminder 5 Run-Time Source Thrst Chmbr Oil Pump	
645	Maintenance Reminder 6 Frequency Disabled	Selects the maintenance reminder frequency. Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
646	Maintenance Reminder 6 Frequency Run-Time	
647	Maintenance Reminder 6 Frequency Monthly	
648	Maintenance Reminder 6 Run-Time Source Panel	Selects the maintenance reminder run-time source. Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
649	Maintenance Reminder 6 Run-Time Source Main Pump	
650	Maintenance Reminder 6 Run-Time Source Charge Pump	
651	Maintenance Reminder 6 Run-Time Source Thrst Chmbr Oil Pump	
652	Maintenance Reminder 7 Frequency Disabled	Selects the maintenance reminder frequency. Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
653	Maintenance Reminder 7 Frequency Run-Time	
654	Maintenance Reminder 7 Frequency Monthly	
655	Maintenance Reminder 7 Run-Time Source Panel	Selects the maintenance reminder run-time source. Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
656	Maintenance Reminder 7 Run-Time Source Main Pump	
657	Maintenance Reminder 7 Run-Time Source Charge Pump	
658	Maintenance Reminder 7 Run-Time Source Thrst Chmbr Oil Pump	
659	Maintenance Reminder 8 Frequency Disabled	Selects the maintenance reminder frequency. Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
660	Maintenance Reminder 8 Frequency Run-Time	
661	Maintenance Reminder 8 Frequency Monthly	
662	Maintenance Reminder 8 Run-Time Source Panel	Selects the maintenance reminder run-time source. Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
663	Maintenance Reminder 8 Run-Time Source Main Pump	
664	Maintenance Reminder 8 Run-Time Source Charge Pump	
665	Maintenance Reminder 8 Run-Time Source Thrst Chmbr Oil Pump	
666	Maintenance Reminder 9 Frequency Disabled	Selects the maintenance reminder frequency. Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
667	Maintenance Reminder 9 Frequency Run-Time	
668	Maintenance Reminder 9 Frequency Monthly	
669	Maintenance Reminder 9 Run-Time Source Panel	Selects the maintenance reminder run-time source. Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
670	Maintenance Reminder 9 Run-Time Source Main Pump	
671	Maintenance Reminder 9 Run-Time Source Charge Pump	
672	Maintenance Reminder 9 Run-Time Source Thrst Chmbr Oil Pump	
673	Maintenance Reminder 10 Frequency Disabled	Selects the maintenance reminder frequency. Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
674	Maintenance Reminder 10 Frequency Run-Time	
675	Maintenance Reminder 10 Frequency Monthly	
676	Maintenance Reminder 10 Run-Time Source Panel	Selects the maintenance reminder run-time source. Only one bit may be Set at a time. Setting a bit will Reset any other Set bit.
677	Maintenance Reminder 10 Run-Time Source Main Pump	
678	Maintenance Reminder 10 Run-Time Source Charge Pump	
679	Maintenance Reminder 10 Run-Time Source Thrst Chmbr Oil Pump	

Parameters (32-Bit Floating Point Holding Registers) – Read/Write

Address	Description	Units	Minimum	Maximum	Values	Notes
16434	Pump Curve Custom Coefficients Plot Minimum Flow	BPD				
16435	Pump Curve Custom Coefficients Plot Maximum Flow	BPD				
16436	Pump Curve Custom Coefficients BEP Flow @ 60 Hz	BPD				
16437	Pump Curve Custom Coefficients BEP Minimum Flow @ 60 Hz	BPD				
16438	Pump Curve Custom Coefficients BEP Maximum Flow @ 60 Hz	BPD				
16439	Pump Curve Custom Coefficients Coefficient X^5 (a)					
16440	Pump Curve Custom Coefficients Coefficient X^4 (b)					
16441	Pump Curve Custom Coefficients Coefficient X^3 (c)					
16442	Pump Curve Custom Coefficients Coefficient X^2 (d)					
16443	Pump Curve Custom Coefficients Coefficient X^1 (e)					
16444	Pump Curve Custom Coefficients Coefficient X^0 (f)					