Yorkguard VI

Fault Code Display and LED Flash Sequence

Operational Faults		LED 1 Red	LED 2 Green	X / L Output
Control Failure that still allows fault code output		On	Off	4 if possible
High Pressure Switch Fault (not in lockout yet)	650 psi	1	Off	Off
High Pressure switch Lockout (Last mode of operation was Heat Pump)	650 psi	2	Off	2 (soft) 3 (hard)
High Pressure Switch Lockout (last mode of operation was Defrost)	650 psi	3	Off	2 (soft) 3 (hard)
Low Pressure switch Lockout	30 psi	4	Off	2 (soft) 3 (hard)
Low Voltage (<19 VAC) preventing further relay outputs		5	Off	Off
Low Voltage (<16 VAC) All relay outputs are stopped		6	Off	Off
Pipe Freeze Protection timer expiration	4 Hr	7	Off	4
Required Sensor or Switch Faults				
Outdoor Ambient Sensor Failure (Short)		On	1	2 (soft)
Outdoor Ambient Sensor Failure (Open)		On	2	2 (soft)
Liquid Line Sensor Failure (Short)		On	3	2 (soft)
Liquid Line Sensor Failure (Open)		On	4	2 (soft)
High Discharge Line Temperature	> 263ºF	On	5	2 (soft) 3 (hard)
Low Discharge Line Temperature	< 90ºF for 1 Hr	On	6	2 (soft), 3 (hard)
Discharge Line Sensor Failure (Short)		On	7	2 (soft)
Optional Bonnet Sensor Faults				
Bonnet Sensor Failure (Short)		On	8	4
Fossil Fuel Mode Setting Error (Bonnet Sensor Present with FFUEL Jumper in OFF Position)		On	9	4
Wiring Related Faults				
Compressor Contactor Miswire		1	On	4
Y2 Present Without Y1		2	On	4
Y1 and W Present Without Y2 in Two Stage Mode		3	On	4
O Signal Received in AC Mode		4	On	4
W Signal Received in AC Mode		5	On	4
W and O Signal Received in AC Mode		6	On	4
W and O Signal Received in HP Mode		7	On	4
Deforst Curve Jumper Error (Invalid Jumper Setting Preventing Compressor Operation)		8	On	4
Operational Mode Display				
Heat Pump			On	
Air Conditioner			Off	
Single Stage Compressor		1		
Twin Single Compressor		2		
Scroll Two Stage Compressor		3		
Status Code Dislpay				
No Power to Control		Off	Off	
First Stage Compressor Operation (not applicable to single stage compressor)		Off	On	
Second Stage Compressor Operation (full capacity)		On	On	
Control Normal Operation - No call for compressor operation		Off	2 sec On - 2 sec Off	
Control Normal Operation - Call for compressor operation with 5-min ASCD active		Off	Rapid Flash	
No Fault Codes in Memory - Initiated by LAST ERROR pushbutton	1 Second	2	2	
Fault Code Memory Cleared - Initiated by LAST ERROR pushbutton	> 5 Seconds	3	3	

Test Pin Behavior

Duration of connection (seconds)	No Thermostat Input Present	With Thermostat Input Present	
Less than 2 seconds	No Response	No Response	
2 - 6 Seconds	Display Operational Mode	Bypass ASCD.	If Y1 is present and HP switch is closed, contactors will be energized.
	Clear Soft Lockout	Clear Soft Lockout	
	Clear Hard Lockout	Clear Hard Lockout	
More than 6 seconds	Display Operational Mode	Initiate Defrost Cycle (LL and OD Sensors are ignored)	
	Defrost Curve is Flashed on X / L	Defrost Curve is Flashed on X / L	
Connection Removed	Resume Normal LED Display	Continue Normal Defrost unless O is Energized	
Connection Not Removed	Display Operational Mode Defrost Curve is Flashed on X / L	Continue Defrost Cycle and X /L Flash Code until TEST connection is removed	

Outdoor Sensor
Temperature / Resistance / Voltage - Conversion Chart

Temperature	Resistance	Voltage	Temperature	Resistance	Voltage
Degrees F	Ohms	DC	Degrees F	Ohms	DC
-25	196,871	3.89	55	17,255	1.18
-20	166,342	3.73	60	15,310	1.07
-15	138,482	3.56	65	13,474	0.96
-10	118,108	3.39	70	11,942	0.87
-5	100,260	3.20	75	10,449	0.79
0	86,463	3.01	80	9,299	0.71
5	72,940	2.82	85	8,250	0.64
10	61,711	2.63	90	7,401	0.58
15	53,640	2.44	95	6,530	0.52
20	46,200	2.25	100	5,774	0.47
25	40,153	2.07	105	5,208	0.42
30	34,367	1.90	110	4,663	0.38
35	29,986	1.74	115	4,203	0.34
40	26,092	1.58	120	3,743	0.31
45	23,013	1.44	125	3,381	0.28
50	19,903	1.30	130	3,047	0.25

Discharge Line Sensor
Temperature / Resistance / Voltage - Conversion Chart

Temperature	Resistance	Voltage	Temperature	Resistance	Voltage
Degrees F	Ohms	DC	Degrees F	Ohms	DC
60	15,310	4.50	180	1,177	2.04
65	13,474	4.44	185	1,070	1.94
70	11,942	4.37	190	974	1.83
75	10,449	4.31	195	899	1.74
80	9,299	4.23	200	823	1.64
85	8,250	4.15	205	764	1.55
90	7,401	4.06	210	700	1.46
95	6,530	3.97	215	651	1.38
100	5,774	3.88	220	599	1.30
105	5,208	3.77	225	561	1.23
110	4,663	3.67	230	517	1.16
115	4,203	3.56	235	476	1.09
120	3,743	3.45	240	442	1.03
125	3,381	3.33	245	406	0.97
130	3,047	3.22	250	379	0.91
135	2,774	3.09	255	349	0.86
140	2,488	2.98	260	327	0.81
145	2,235	2.85	265	304	0.76
150	2,041	2.73	270	284	0.72
155	1,854	2.61	275	265	0.67
160	1,693	2.49	280	248	0.64
165	1,530	2.38	285	232	0.60
170	1,400	2.26	290	217	0.57
175	1,287	2.15	295	203	0.53

Liquid Line (Coil) Sensor
Temperature / Resistance / Voltage - Conversion Chart

Temperature	Resistance	Voltage	Temperature	Resistance	Voltage
Degrees F	Ohms	DC	Degrees F	Ohms	DC
-25	196,871	3.71	45	23,013	1.25
-20	166,342	3.54	50	19,903	1.13
-15	138,482	3.36	55	17,255	1.02
-10	118,108	3.17	60	15,310	0.91
-5	100,260	2.98	65	13,474	0.82
0	86,463	2.78	70	11,942	0.74
5	72,940	2.58	75	10,449	0.66
10	61,711	2.39	80	9,299	0.60
15	53,640	2.20	85	8,250	0.54
20	46,200	2.02	90	7,401	0.48
25	40,153	1.84	95	6,530	0.43
30	34,367	1.68	100	5,774	0.39
35	29,986	1.52	105	5,208	0.35
40	26,092	1.38	110	4,663	0.32

Bonnet Sensor (Optional)
Temperature / Resistance / Voltage - Conversion Chart

Temperature	Resistance	Voltage	Temperature	Resistance	Voltage
Degrees F	Ohms	DC	Degrees F	Ohms	DC
50	19,903	3.96	110	4,663	2.36
55	17,255	3.84	115	4,203	2.22
60	15,310	3.72	120	3,743	2.09
65	13,474	3.60	125	3,381	1.96
70	11,942	3.47	130	3,047	1.84
75	10,449	3.33	135	2,774	1.72
80	9,299	3.20	140	2,488	1.61
85	8,250	3.06	145	2,235	1.50
90	7,401	2.92	150	2,041	1.40
95	6,530	2.78	155	1,854	1.30
100	5,774	2.63	160	1,693	1.23
105	5,208	2.49	165	1,530	1.14

Input Description

R	24 VAC System Power from Indoor Unit
C	24 VAC System Common from Indoor Unit
Y1	Call for 1st Stage Compressor Operation
Y2	Call for 2nd Stage Compressor Operation
O	Call for Reversing Valve (Cooling Mode)
W	Call for Auxiliary Heat
HPS	High Pressure Switch — 650 psi / Normally Closed
LPS	Low Pressure Switch — 30 psi / Normally Closed
DIS	Discharge Line Sensor — NTC Thermistor
AMB	Outdoor Ambient Sensor — NTC Thermistor
LL	Liquid Line (Coil) Sensor — NTC Thermistor
BS	Bonnet Sensor (Optional) — NTC Thermistor
Last Error	Pushbutton to Display and Clear Stored Fault Codes
Test	To Force Operation, Reset Lockouts, Display Information
L1	Line Voltage (240VAC) Input for Outdoor Fan and Crankcase Htr

Output Description

M	Single Stage and Two Stage Scroll contactor output signal
M1	1st Stage contactor output for TS Compressors
M2	2nd Stage output, TS - Contactor, UltraTech Scroll - Solenoid
W1 Out	1st Stage Auxiliary Heat output signal
W2 Out	2nd Stage Auxiliary Heat output signal
Y2 Out	High Indoor Airflow operation
X / L	Fault / Lockout output signal
RV	Output for Reversing Valve
ODF	Terminal for Outdoor Fan output (240 VAC)
CCH	Terminal for Crankcase Heater output (240 VAC)
LED 1	Red LED to display Diagnostic Codes
LED 2	Green LED to display Diagnostic Codes

Jumper Description

FFuel	Off = Air Handler On = Gas Furnace
BP	Auxiliary Heat is locked off above this setting (Em Heat Excluded)
Sw Point	2nd Stage Comp (Heat Pump only) is energized below this setting
LTCO	Heat Pump is locked off below setting (Aux Heat supplies all heat)
Y2 Lock	On = If 2nd Stage compressor becomes energized, it is locked in until 1st stage of the thermostat is satisfied
Def Curve	Selects Defrost Curve (1 = 2T & 2.5T) (3 = 3T & 3.5T) (2 = 4T & 5T)
Hot HP	On = Lower Indoor Airflow / Higher Supply Air Temperature

Thermistor Definitions
NTC = Negative Temperature Coefficient

Thermistor	Condition		Primary Range (Degrees F)	Accuracy (Over Primary Range) (Degrees F)
	Shorted (Ohms)	Open (Ohms)		
Outdoor	< 1000	> 350,000	-20 to 50	1 Deg. F
Liquid Line	<1000	> 350,000	-25 to 45	1 Deg. F
Discharge	< 100	> 100,000	80 to 280	3 Deg. F
Bonnet	< 200	> 100,000	90 to 120	1 Deg. F