

By attaching the blue RS 232 cable from the controller to the lap top and installing the specially designed EXQHeat Terminal software you should get the following by typing "Menu"

>

>menu

1)	Analysis Interval	=	60 min.
2)	System Startup Delay	=	1 min.
3)	Demand Ratio Ideal	=	70 %
4)	Actual Demand Ratio Min	=	10 %
5)	Startup Temperature	=	150 deg.
6)	Deg Change Increment	=	3 deg.
7)	Range Differential	=	10 deg.
8)	High Temp Absolute	=	200 deg.
9)	High Temp Safety	=	250 deg.
10)	Low Temp Absolute	=	150 deg.
11)	Low Temp Safety	=	50 deg.
12)	Temperature Averaging	=	5 sec.
13)	Thermostat Polarity	=	1 deg.
14)	HotWaterLowTemp	=	0 deg.

>?

ExqHeat Controller Sep 20 2006 TEMP

11/28/07 08:15.28 PM

Current source temp	=	164 deg.
Low temp limit	=	140 deg.
High temp limit	=	150 deg.
Desired Demand Ratio	=	70 %
Actual Demand Ratio	=	0 %
Thermostat	=	Off.
Source	=	Off.

>menu

1)	Analysis Interval	=	60 min.
2)	System Startup Delay	=	1 min.
3)	Demand Ratio Ideal	=	70 %
4)	Actual Demand Ratio Min	=	10 %
5)	Startup Temperature	=	150 deg.
6)	Deg Change Increment	=	3 deg.
7)	Range Differential	=	10 deg.
8)	High Temp Absolute	=	200 deg.
9)	High Temp Safety	=	250 deg.
10)	Low Temp Absolute	=	150 deg.
11)	Low Temp Safety	=	50 deg.
12)	Temperature Averaging	=	5 sec.
13)	Thermostat Polarity	=	1 deg.
14)	HotWaterLowTemp	=	0 deg.

>11/28/07 08:16.03 PM Setting System Online for Startup.

Temp = 160 deg.

menu

```

1 ) Analysis Interval           = 60 min.
2 ) System Startup Delay       = 1 min.
3 ) Demand Ratio Ideal         = 80 %
4 ) Actual Demand Ratio Min    = 10 %
5 ) Startup Temperature        = 155 deg.
6 ) Deg Change Increment       = 2 deg.
7 ) Range Differential          = 10 deg.
8 ) High Temp Absolute         = 180 deg.
9 ) High Temp Safety           = 250 deg.
10 ) Low Temp Absolute         = 145 deg.
11 ) Low Temp Safety           = 50 deg.
12 ) Temperature Averaging     = 5 sec.
13 ) Thermostat Polarity       = 0 deg.
14 ) HotWaterLowTemp          = 0 deg.

```

>edit 10

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The current Low Temp Absolute      = 145 deg.
Enter the new Low Temp Absolute    : > 135
> OK. Setting Low Temp Absolute    = 135 deg.
>Saving Settings...Done.

```

menu

```

1 ) Analysis Interval           = 60 min.
2 ) System Startup Delay       = 1 min.
3 ) Demand Ratio Ideal         = 80 %
4 ) Actual Demand Ratio Min    = 10 %
5 ) Startup Temperature        = 155 deg.
6 ) Deg Change Increment       = 2 deg.
7 ) Range Differential          = 10 deg.
8 ) High Temp Absolute         = 180 deg.
9 ) High Temp Safety           = 250 deg.
10 ) Low Temp Absolute         = 135 deg.
11 ) Low Temp Safety           = 50 deg.
12 ) Temperature Averaging     = 5 sec.
13 ) Thermostat Polarity       = 0 deg.
14 ) HotWaterLowTemp          = 0 deg.

```

>?

ExqHeat Controller Sep 20 2006 TEMP

12/07/07 08:47.47 PM

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Current source temp = 148 deg.
Low temp limit      = 145 deg.
High temp limit     = 155 deg.
Desired Demand Ratio = 80 %
Actual Demand Ratio = 75 %
Thermostat = On .
Source = Off.

```

```

12/07/07 09:05.25 PM Source Off Temp = 155 deg.
12/07/07 09:19.51 PM Source On Temp = 144 deg.

```

(4) 12/07/07 09:25.53 PM Cycle Time Elapsed = 60 min. 0 sec.

Th On Ratio = 3600 of 3600 = 100 %
Source Ratio = 1748 of 3600 = 48 %

Ideal Demand Ratio = 80 %
Actual Demand Ratio = 100 %
Temp Change Factor = 20
Deg Change Increment = 2
Old Temp Set Point = 155 deg.
New Temp Set Point = 159 deg.

12/07/07 09:59.39 PM Source Off Temp = 159 deg.
12/07/07 10:15.29 PM Source On Temp = 148 deg.
12/07/07 10:21.46 PM Thermostat Off Temp = 149 deg.

(5) 12/07/07 10:24.51 PM Cycle Time Elapsed = 60 min. 0 sec.
Th On Ratio = 3411 of 3600 = 94 %
Source Ratio = 2638 of 3600 = 73 %

Ideal Demand Ratio = 80 %
Actual Demand Ratio = 94 %
Temp Change Factor = 14
Deg Change Increment = 2
Old Temp Set Point = 159 deg.
New Temp Set Point = 162 deg.

12/07/07 10:30.16 PM Source Off Temp = 162 deg.
12/07/07 10:44.18 PM Source On Temp = 151 deg.
12/07/07 10:46.21 PM Thermostat On Temp = 150 deg.
12/07/07 10:58.15 PM Source Off Temp = 162 deg.
12/07/07 11:07.55 PM Source On Temp = 151 deg.
12/07/07 11:21.28 PM Source Off Temp = 162 deg.

(6) 12/07/07 11:24.02 PM Cycle Time Elapsed = 60 min. 0 sec.
Th On Ratio = 2295 of 3600 = 63 %
Source Ratio = 2005 of 3600 = 55 %

Ideal Demand Ratio = 80 %
Actual Demand Ratio = 63 %
Temp Change Factor = -17
Deg Change Increment = 2
Old Temp Set Point = 162 deg.
New Temp Set Point = 159 deg.

12/07/07 11:37.00 PM Source On Temp = 148 deg.
12/07/07 11:49.30 PM Source Off Temp = 159 deg.
12/08/07 12:04.38 AM Source On Temp = 148 deg.
12/08/07 12:18.36 AM Source Off Temp = 159 deg.

(7) 12/08/07 12:23.15 AM Cycle Time Elapsed = 60 min. 0 sec.
Th On Ratio = 3600 of 3600 = 100 %
Source Ratio = 1612 of 3600 = 44 %

Ideal Demand Ratio = 80 %
Actual Demand Ratio = 100 %

Temp Change Factor = 20
Deg Change Increment = 2
Old Temp Set Point = 159 deg.
New Temp Set Point = 163 deg.
12/08/07 12:29.50 AM Source On Temp = 152 deg.
12/08/07 12:43.16 AM Source Off Temp = 163 deg.
12/08/07 12:53.45 AM Source On Temp = 152 deg.
12/08/07 01:06.07 AM Thermostat Off Temp = 161 deg.
12/08/07 01:06.54 AM Source Off Temp = 163 deg.
12/08/07 01:22.11 AM Source On Temp = 152 deg.

(8) 12/08/07 01:22.30 AM Cycle Time Elapsed = 60 min. 0 sec.
Th On Ratio = 2606 of 3600 = 72 %
Source Ratio = 1637 of 3600 = 45 %

Ideal Demand Ratio = 80 %
Actual Demand Ratio = 72 %
Temp Change Factor = - 8
Deg Change Increment = 2
Old Temp Set Point = 163 deg.
New Temp Set Point = 161 deg.
12/08/07 01:30.44 AM Source Off Temp = 161 deg.
12/08/07 01:32.20 AM Thermostat On Temp = 162 deg.
12/08/07 01:39.51 AM Source On Temp = 150 deg.
12/08/07 01:54.54 AM Source Off Temp = 161 deg.
12/08/07 02:08.36 AM Source On Temp = 150 deg.

(9) 12/08/07 02:21.41 AM Cycle Time Elapsed = 60 min. 0 sec.
Th On Ratio = 3003 of 3600 = 83 %
Source Ratio = 2215 of 3600 = 61 %

Ideal Demand Ratio = 80 %
Actual Demand Ratio = 83 %
Temp Change Factor = 3
Deg Change Increment = 2
Old Temp Set Point = 161 deg.
New Temp Set Point = 162 deg.
12/08/07 02:24.59 AM Source Off Temp = 162 deg.
12/08/07 02:37.17 AM Source On Temp = 151 deg.
12/08/07 02:52.30 AM Source Off Temp = 162 deg.
12/08/07 03:05.49 AM Source On Temp = 151 deg.
12/08/07 03:18.22 AM Source Off Temp = 162 deg.

(10) 12/08/07 03:20.53 AM Cycle Time Elapsed = 60 min. 0 sec.
Th On Ratio = 3600 of 3600 = 100 %
Source Ratio = 1891 of 3600 = 52 %

Ideal Demand Ratio = 80 %
Actual Demand Ratio = 100 %
Temp Change Factor = 20
Deg Change Increment = 2

Old Temp Set Point = 162 deg.
New Temp Set Point = 166 deg.
12/08/07 03:26.43 AM Source On Temp = 155 deg.
12/08/07 03:41.03 AM Thermostat Off Temp = 165 deg.
12/08/07 03:41.35 AM Source Off Temp = 166 deg.
12/08/07 03:56.48 AM Source On Temp = 155 deg.
12/08/07 04:06.14 AM Source Off Temp = 166 deg.
12/08/07 04:07.00 AM Thermostat On Temp = 168 deg.
12/08/07 04:14.50 AM Source On Temp = 155 deg.

(11) 12/08/07 04:20.10 AM Cycle Time Elapsed = 60 min. 0 sec.
Th On Ratio = 2026 of 3600 = 56 %
Source Ratio = 1801 of 3600 = 50 %

Ideal Demand Ratio = 80 %
Actual Demand Ratio = 56 %
Temp Change Factor = - 24
Deg Change Increment = 2
Old Temp Set Point = 166 deg.
New Temp Set Point = 161 deg.
12/08/07 04:22.28 AM Source Off Temp = 161 deg.
12/08/07 04:36.15 AM Source On Temp = 150 deg.
12/08/07 04:47.04 AM Source Off Temp = 161 deg.
12/08/07 05:00.39 AM Source On Temp = 150 deg.
12/08/07 05:10.53 AM Source Off Temp = 161 deg.

(12) 12/08/07 05:19.28 AM Cycle Time Elapsed = 60 min. 0 sec.
Th On Ratio = 3600 of 3600 = 100 %
Source Ratio = 1419 of 3600 = 39 %

Ideal Demand Ratio = 80 %
Actual Demand Ratio = 100 %
Temp Change Factor = 20
Deg Change Increment = 2
Old Temp Set Point = 161 deg.
New Temp Set Point = 165 deg.
12/08/07 05:20.07 AM Source On Temp = 154 deg.
12/08/07 05:32.28 AM Source Off Temp = 165 deg.
12/08/07 05:45.55 AM Source On Temp = 154 deg.
12/08/07 05:58.12 AM Source Off Temp = 165 deg.
12/08/07 06:10.46 AM Source On Temp = 154 deg.
12/08/07 06:11.06 AM Thermostat Off Temp = 154 deg.

(13) 12/08/07 06:18.44 AM Cycle Time Elapsed = 60 min. 0 sec.
Th On Ratio = 3135 of 3600 = 87 %
Source Ratio = 1983 of 3600 = 55 %

Ideal Demand Ratio = 80 %
Actual Demand Ratio = 87 %
Temp Change Factor = 7
Deg Change Increment = 2

Old Temp Set Point = 165 deg.
New Temp Set Point = 166 deg.
12/08/07 06:19.42 AM Source Off Temp = 166 deg.
12/08/07 06:31.43 AM Source On Temp = 155 deg.
12/08/07 06:38.00 AM Thermostat On Temp = 158 deg.
12/08/07 06:45.47 AM Source Off Temp = 166 deg.
12/08/07 07:00.29 AM Source On Temp = 155 deg.

(14) 12/08/07 07:17.59 AM Cycle Time Elapsed = 60 min. 0 sec.
Th On Ratio = 2432 of 3600 = 67 %
Source Ratio = 1981 of 3600 = 55 %

Ideal Demand Ratio = 80 %
Actual Demand Ratio = 67 %
Temp Change Factor = - 13
Deg Change Increment = 2
Old Temp Set Point = 166 deg.
New Temp Set Point = 163 deg.
12/08/07 07:27.19 AM Source Off Temp = 163 deg.
12/08/07 07:41.13 AM Source On Temp = 152 deg.
12/08/07 07:52.55 AM Source Off Temp = 163 deg.
12/08/07 07:59.20 AM Thermostat Off Temp = 161 deg.
12/08/07 08:12.21 AM Source On Temp = 152 deg.

(15) 12/08/07 08:17.15 AM Cycle Time Elapsed = 60 min. 0 sec.
Th On Ratio = 2513 of 3600 = 69 %
Source Ratio = 1579 of 3600 = 43 %

Ideal Demand Ratio = 80 %
Actual Demand Ratio = 69 %
Temp Change Factor = - 11
Deg Change Increment = 2
Old Temp Set Point = 163 deg.
New Temp Set Point = 161 deg.
12/08/07 08:20.23 AM Source Off Temp = 161 deg.
12/08/07 08:29.34 AM Thermostat On Temp = 158 deg.
12/08/07 08:33.35 AM Source On Temp = 150 deg.
12/08/07 08:48.02 AM Source Off Temp = 161 deg.
12/08/07 08:59.28 AM Source On Temp = 150 deg.

(16) 12/08/07 09:16.27 AM Cycle Time Elapsed = 60 min. 0 sec.
Th On Ratio = 2853 of 3600 = 79 %
Source Ratio = 2105 of 3600 = 58 %

Ideal Demand Ratio = 80 %
Actual Demand Ratio = 79 %
Temp Change Factor = - 1
Deg Change Increment = 2
Old Temp Set Point = 161 deg.
New Temp Set Point = 161 deg.
12/08/07 09:19.05 AM Source Off Temp = 161 deg.

12/08/07 09:30.17 AM Source On Temp = 150 deg.
12/08/07 09:30.45 AM Thermostat Off Temp = 149 deg.
12/08/07 09:43.00 AM Source Off Temp = 161 deg.
12/08/07 09:58.55 AM Source On Temp = 150 deg.
12/08/07 10:06.02 AM Thermostat On Temp = 157 deg.
12/08/07 10:07.49 AM Source Off Temp = 161 deg.

(17) 12/08/07 10:15.43 AM Cycle Time Elapsed = 60 min. 0 sec.
Th On Ratio = 1458 of 3600 = 40 %
Source Ratio = 1476 of 3600 = 41 %

Ideal Demand Ratio = 80 %
Actual Demand Ratio = 40 %
Temp Change Factor = - 40
Deg Change Increment = 2
Old Temp Set Point = 161 deg.
New Temp Set Point = 153 deg.

12/08/07 10:27.49 AM Source On Temp = 142 deg.
12/08/07 10:52.49 AM Source Off Temp = 153 deg.

menu

1) Analysis Interval = 60 min.
2) System Startup Delay = 1 min.
3) Demand Ratio Ideal = 80 %
4) Actual Demand Ratio Min = 10 %
5) Startup Temperature = 155 deg.
6) Deg Change Increment = 2 deg.
7) Range Differential = 10 deg.
8) High Temp Absolute = 180 deg.
9) High Temp Safety = 250 deg.
10) Low Temp Absolute = 135 deg.
11) Low Temp Safety = 50 deg.
12) Temperature Averaging = 5 sec.
13) Thermostat Polarity = 0 deg.
14) HotWaterLowTemp = 0 deg.

>12/08/07 11:03.26 AM Thermostat Off Temp = 146 deg.
12/08/07 11:09.21 AM Source On Temp = 142 deg.

(18) 12/08/07 11:14.54 AM Cycle Time Elapsed = 60 min. 0 sec.
Th On Ratio = 2903 of 3600 = 80 %
Source Ratio = 1863 of 3600 = 51 %

Ideal Demand Ratio = 80 %
Actual Demand Ratio = 80 %
Temp Change Factor = 0
Deg Change Increment = 2
Old Temp Set Point = 153 deg.
New Temp Set Point = 153 deg.

12/08/07 11:16.53 AM Source Off Temp = 153 deg.
12/08/07 11:37.27 AM Source On Temp = 142 deg.
12/08/07 11:47.30 AM Thermostat On Temp = 150 deg.
12/08/07 11:48.15 AM Source Off Temp = 153 deg.
12/08/07 12:02.14 PM Source On Temp = 142 deg.

12/08/07 12:12.00 PM Source Off Temp = 153 deg.

(19) 12/08/07 12:14.01 PM Cycle Time Elapsed = 60 min. 0 sec.

Th On Ratio = 1619 of 3600 = 44 %

Source Ratio = 1377 of 3600 = 38 %

Ideal Demand Ratio = 80 %

Actual Demand Ratio = 44 %

Temp Change Factor = - 36

Deg Change Increment = 2

Old Temp Set Point = 153 deg.

New Temp Set Point = 146 deg.

12/08/07 12:23.43 PM Thermostat Off Temp = 148 deg.

12/08/07 12:51.55 PM Source On Temp = 135 deg.

12/08/07 01:00.25 PM Source Off Temp = 146 deg.

12/08/07 01:07.02 PM Thermostat On Temp = 151 deg.

(20) 12/08/07 01:13.12 PM Cycle Time Elapsed = 60 min. 0 sec.

Th On Ratio = 968 of 3600 = 26 %

Source Ratio = 519 of 3600 = 14 %

Ideal Demand Ratio = 80 %

Actual Demand Ratio = 26 %

Temp Change Factor = - 54

Deg Change Increment = 2

Old Temp Set Point = 146 deg.

New Temp Set Point = 135 deg.

12/08/07 01:18.29 PM Source On Temp = 134 deg.

12/08/07 01:29.52 PM Source Off Temp = 145 deg.

12/08/07 01:48.01 PM Thermostat Off Temp = 138 deg.

12/08/07 01:52.25 PM Source On Temp = 134 deg.

12/08/07 02:02.03 PM Source Off Temp = 145 deg.

(21) 12/08/07 02:12.18 PM Cycle Time Elapsed = 60 min. 0 sec.

Th On Ratio = 2121 of 3600 = 58 %

Source Ratio = 1283 of 3600 = 35 %

Ideal Demand Ratio = 80 %

Actual Demand Ratio = 58 %

Temp Change Factor = - 22

Deg Change Increment = 2

Old Temp Set Point = 145 deg.

New Temp Set Point = 141 deg.

12/08/07 02:30.49 PM Thermostat On Temp = 140 deg.

menu

1) Analysis Interval = 60 min.

2) System Startup Delay = 1 min.

3) Demand Ratio Ideal = 80 %

4) Actual Demand Ratio Min = 10 %

5) Startup Temperature = 155 deg.

6) Deg Change Increment = 2 deg.

7) Range Differential = 10 deg.
8) High Temp Absolute = 180 deg.
9) High Temp Safety = 250 deg.
10) Low Temp Absolute = 135 deg.
11) Low Temp Safety = 50 deg.
12) Temperature Averaging = 5 sec.
13) Thermostat Polarity = 0 deg.
14) HotWaterLowTemp = 0 deg.

>edit 10

The current Low Temp Absolute = 135 deg.
Enter the new Low Temp Absolute : > 140
> OK. Setting Low Temp Absolute = 140 deg.

12/08/07 02:31.53 PM Source On Temp = 139 deg.
Saving Settings...Done.

menu

1) Analysis Interval = 60 min.
2) System Startup Delay = 1 min.
3) Demand Ratio Ideal = 80 %
4) Actual Demand Ratio Min = 10 %
5) Startup Temperature = 155 deg.
6) Deg Change Increment = 2 deg.
7) Range Differential = 10 deg.
8) High Temp Absolute = 180 deg.
9) High Temp Safety = 250 deg.
10) Low Temp Absolute = 140 deg.
11) Low Temp Safety = 50 deg.
12) Temperature Averaging = 5 sec.
13) Thermostat Polarity = 0 deg.
14) HotWaterLowTemp = 0 deg.

12/08/07 02:44.27 PM Source Off Temp = 150 deg.
12/08/07 03:06.46 PM Source On Temp = 139 deg.

(22) 12/08/07 03:11.27 PM Cycle Time Elapsed = 60 min. 0 sec.
Th On Ratio = 2477 of 3600 = 68 %
Source Ratio = 1056 of 3600 = 29 %

Ideal Demand Ratio = 80 %
Actual Demand Ratio = 68 %
Temp Change Factor = - 12
Deg Change Increment = 2
Old Temp Set Point = 150 deg.
New Temp Set Point = 148 deg.

12/08/07 03:16.48 PM Source Off Temp = 150 deg.
12/08/07 03:29.15 PM Source On Temp = 139 deg.
12/08/07 03:30.36 PM Thermostat Off Temp = 138 deg.
12/08/07 03:38.34 PM Source Off Temp = 150 deg.
12/08/07 03:52.45 PM Source On Temp = 139 deg.
12/08/07 04:02.36 PM Source Off Temp = 150 deg.
12/08/07 04:08.31 PM Thermostat On Temp = 154 deg.

(23) 12/08/07 04:10.33 PM Cycle Time Elapsed = 60 min. 0 sec.
Th On Ratio = 1291 of 3600 = 35 %
Source Ratio = 1496 of 3600 = 41 %

Ideal Demand Ratio = 80 %
Actual Demand Ratio = 35 %
Temp Change Factor = - 45
Deg Change Increment = 2
Old Temp Set Point = 150 deg.
New Temp Set Point = 141 deg.

12/08/07 04:11.35 PM Source On Temp = 139 deg.
12/08/07 04:22.03 PM Source Off Temp = 150 deg.
12/08/07 04:33.43 PM Source On Temp = 139 deg.
12/08/07 04:39.25 PM Thermostat Off Temp = 139 deg.

save

Saving Settings...Done.

End of file: cable disconnected

90 Gregory