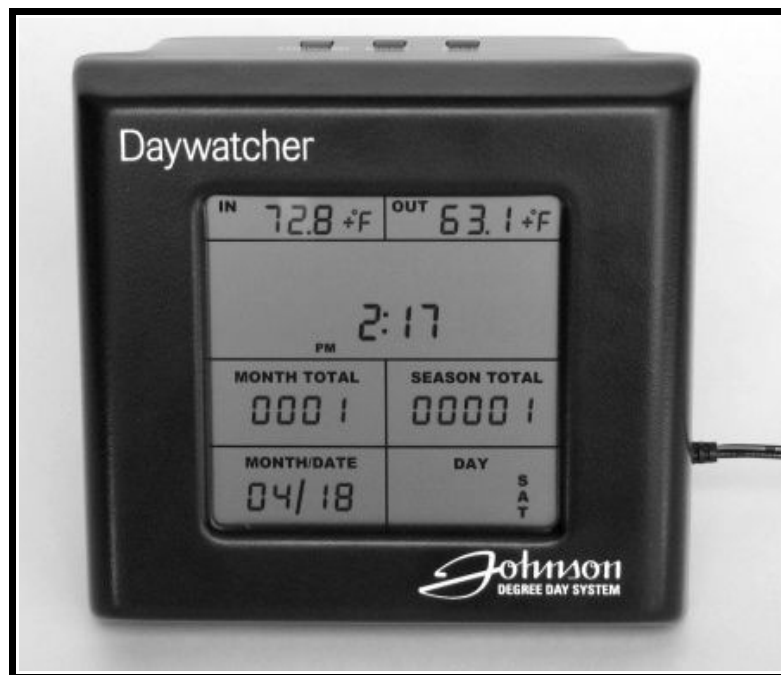


The Daywatcher

Fuel Demand Meter System

Product Manual



System Model EA-09



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FCC Information

WARNING: THIS EQUIPMENT WILL GENERATE, USE AND MAY RADIATE RADIO FREQUENCY ENERGY. IF IT IS NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL AND QUICK START GUIDE, THE EQUIPMENT MAY CAUSE INTERFERENCE TO RADIO COMMUNICATION. IT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS A COMPUTING DEVICE PURSUANT TO SUBPART J OF PART 15 OF FCC RULES. THESE RULES WERE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST SUCH INTERFERENCE WHEN OPERATED IN A COMMERCIAL ENVIRONMENT. HOWEVER, OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE INTERFERENCE. IN THE EVENT OF RESIDENTIAL INTERFERENCE, THE USER WILL ELIMINATE THE INTERFERENCE AND ASSUME ALL COSTS FOR ANY MEASURES WHICH ARE NECESSARY TO DO SO.

Package Contents



Daywatcher Inside Unit (IU)



AC Adapter



Three (3) AA Batteries



Outdoor Temperature Sensor



**Radiation Shield w/U-Clamp
Assembly**

Initial Setup

To set up your degree-day logging system, you will need to perform the following steps:

1. Power up the Daywatcher Inside Unit and set-up the base settings (page 2).
2. Assemble the Outdoor Temperature Sensor and Radiation Shield (page 6).
3. Properly install the Outdoor Sensor / Radiation Shield assembly (page 9).
4. Properly align the Inside Unit with the Outdoor Sensor (page 9-10).

If you have technical support questions, you can contact us at:

Phone: 269-343-1221

Or - Visit our website at www.theDaywatcher.com for the latest updates and FAQs.

Inside Unit

- **Powering Up**

The Daywatcher Inside Unit uses AC current for power. It has a back-up battery in the event of power failures and won't lose data, even if unplugged, however, it must be plugged in to accumulate readings.

(The battery is easily replaced by the user – check our website for instructions.)

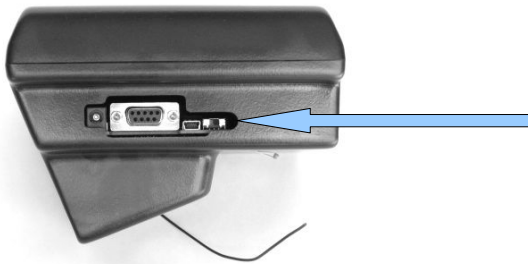
Plug the Inside Unit into a power source using the supplied AC adapter. There is no power button. The unit will take about 20 seconds to power up. The screen refreshes every minute and updates all of the data.

The Daywatcher clock must be set-up prior to operation

- **Setting time, date, yearly re-set, time of day A. Time-Month-Date-Day Set-up: re-set, and base temperature.**

Set current time and date:

Locate the slide switch on the side of the Inside Unit and move to the down position . This opens the (A). Display will be in 24 hour military time.)
adjustment settings for initial set-up.



A

IN	OUT
3:34	
MONTH TOTAL	SEASON TOTAL
MONTH / DATE	DAY
06/09	F R I

Time/Date/Day

Set-up will require operation of Mode, Forward and Back buttons. The Mode button will cycle you through the setup screens.



Set the hour first, using the forward and back buttons.

- Press Mode when set.

Set the minute using the forward and back buttons.

- Press Mode when set.

Set the month using the forward and back buttons.

- Press Mode when set.

Set the date using the forward and back buttons.

- Press Mode when set.

Set the day using the forward and back buttons.

- Press Mode when set.

If you go past a setting and have not set the correct number, you can cycle through the set-up screens by using the Mode button.

B – Yearly Reset:

After you have set the previous data, the Yearly re-set screen will appear. (B) If set to YES. The Daywatcher will automatically re-set its annual numbers once a year. This feature can be turned off, and the degree days will continue to add until 99,999. The counter will then display “E0,000” as more counts are accumulated. When 110,000 days are reached, the E will drop out and there will only be 4 placeholders – 111,000 will look like 1,000 with NO extra placeholder in front. You can change the End-of-Year Reset date to match your system or any other date you choose.

Yearly re-set is set to YES by default. Use Forward to cycle Yes or No.

To set yearly re-set to NO, push the Forward button to display NO. Button will cycle NO and YES.

- Press Mode when set.

B

IN	OUT
nOYrly r ES	
MONTH TOTAL	SEASON TOTAL
MONTH / DATE	DAY

Yearly Re-set Y/N

C – Yearly Re-set Date:

C

IN	OUT
YrLY r ES	
MONTH TOTAL	SEASON TOTAL
MONTH / DATE	DAY
09/01	

Yearly Re-set Date

Set yearly re-set month by using forward and back buttons.

- Press Mode when set.

Set yearly re-set date by using forward and back buttons.

- Press Mode when set.

D - Daily Reset Time:

To set the daily re-set time, use the forward and back buttons to set the desired time. This is set in 24 hour military time.

D

IN	OUT
r ES	13:01
MONTH TOTAL	SEASON TOTAL
MONTH / DATE	DAY

Daily Re-set Time

Use buttons to set hour

- Press Mode when set.

Use buttons to set minute.

- Press Mode when set.

E - Base Temperature:

The unit has been set with a default base temperature setting of 65 F.

E

IN	OUT 65.0°F
dd base	
MONTH TOTAL	SEASON TOTAL
MONTH / DATE	DAY

Base Temperature

To change the base temperature, use the forward or back buttons to change the degree settings.

- Press Mode when set.

The base temperature must be set as Fahrenheit even if using Centigrade. If the base temp is to be 18 C, for example, the base temp must be set at 64.4 F. The readings on the display will be in C. if the scale is set to C.

F. Temperature Scale:

The unit has a default Fahrenheit scale.

To set the scale to centigrade or Fahrenheit, use the forward button.

- Press Mode when set.

F

IN	OUT
display deg F	
MONTH TOTAL	SEASON TOTAL
MONTH / DATE	DAY

F or C

At this step move the switch to the UP position, unplug the unit and plug the unit back in. This sets the unit up for operation.

Hot Water

Here is how the Daywatcher calculates hot water degree days:

For every:

00-05	Heat DD	add 6 HW
06-10	Heat DD	add 5 HW
11-15	Heat DD	add 4 HW
16-20	Heat DD	add 3 HW
21-25	Heat DD	add 2 HW
26-30	Heat DD	add 1 HW
31+	Heat DD	add 1 HW every 3 days

Daywatcher Screen Guide

The Daywatcher Inside Unit uses eight selectable screens, each accessed by pressing the Mode button on the top of the unit. The following is a detailed guide to these screens.

1. **Time** – No degree day information appears on this screen.
 2. **History** – This screen allows you to review the degree-day history of any given 24-hour period. When you press the back and forward buttons, **the date changes** and shows the corresponding degree-day information. The history stores one season of degree-day information if the Yearly Reset is enabled (default setting), or one year of information if the reset is disabled.
 3. **Season Total (Heat)** – This screen allows you to view/adjust the heat season total.
 4. **Season Total (Hot Water)** – This screen allows you to view/adjust the hot water season total.
 5. **Month Total (Heat)** – This screen allows you to view/adjust the heat monthly total.
 6. **Month Total (Hot Water)** – This screen allows you to view/adjust the monthly hot water total.
- * **When adjusting these numbers always go forward from zero – do not try and reach your number by going backward from zero.**
7. **Accumulative Degree Days** – This screen displays the heat and hot water degree days. It continuously adds the degree days to the previous date's total, providing a cumulative number.
 8. **Daily Degree Days** – This screen displays daily degree days.

Adjusting the Degree-Day Information

In Screens 3,4,5 & 6 pressing the forward or back buttons on the top of the Daywatcher will **adjust the displayed number**. By pressing and holding either button, you can quickly advance the degree days. Use this to adjust totals to match your fuel management settings.

Make sure unit is on screens **1,2,7 or 8** for normal operations

The Daywatcher Screens

1

IN 77.8 +F	OUT 72.6 +F
3:34 PM	
MONTH TOTAL 0025	SEASON TOTAL 00107
MONTH / DATE 06/09	DAY F R I

Time

2

IN	OUT
HEAT 0003	HOT WATER 0009
MONTH TOTAL	
MONTH / DATE 06/09	DAY

History (Daily)

3

IN	OUT
HEAT	
MONTH TOTAL	SEASON TOTAL 00107
MONTH / DATE	DAY

Season Total (Heat)

4

IN	OUT
HOT WATER	
MONTH TOTAL	SEASON TOTAL 00204
MONTH / DATE	DAY

**Season Total
(Hot Water)**

5

IN	OUT
HEAT	
MONTH TOTAL 0025	SEASON TOTAL
MONTH / DATE	DAY

**Month Total
(Heat)**

6

IN	OUT
HOT WATER	
MONTH TOTAL 0051	SEASON TOTAL
MONTH / DATE	DAY

**Month Total
(Hot Water)**

7

IN 77.8 +F	OUT 72.6 +F
HEAT 00107	HOT WATER 00204
MONTH TOTAL 0025	SEASON TOTAL 00107
MONTH / DATE 06/09	DAY F R I

**Accumulative
Degree Days**

8

IN 77.8 +F	OUT 72.6 +F
HEAT 0003	HOT WATER 0009
MONTH TOTAL 0025	SEASON TOTAL 00107
MONTH / DATE 06/09	DAY F R I

Daily Degree Days

Automatic Data Transfers

The Inside Unit is capable of transferring data into a compatible fuel software program through a USB interface on the side of the Daywatcher connected to a computer. The unit can automatically transmits data once a day eliminating the need for daily posts. If you don't use a fuel software package, or are using a non-compatible software program, you do not need to use the USB cable. Contact your fuel management software provider for more information. For older computers, you can also use the serial interface, also located on the side of the Daywatcher unit to transfer data. NOTE: Only use one data interface at a time; do not use the USB and serial ports at the same time.

Cleaning the Inside Unit

To clean the Inside Unit, wipe the receiver with a damp cloth. Do not use harsh chemicals, as they can damage the plastic and LCD screen. Outdoor Temperature Sensor

Outside Unit

Battery Installation

The Outdoor Temperature Sensor continuously monitors the outside air temperature. It runs on three AA batteries. *(The Inside Unit will display "bbb" in the outdoor temperature area of the screen when the batteries need to be replaced.)* It is important that high-quality batteries are used to ensure accurate degree day information. Batteries should be replaced at the beginning of each season.

Remove the rivets (a coin can be used to push the rivet pin out) on the bottom cover and gently pull it down, using a flat-blade screwdriver or coin if necessary (Figure 3). Be careful not to pull the cover too hard, as the assembly could be pulled out of the unit.



Install the batteries being careful not to push on the electronic board, and reassemble the sensor. If you are replacing batteries in bad weather, bring the unit inside to shield the electronics from moisture.

Align the base with the notch in the cup.

Connecting the Outdoor Sensor to the Radiation Shield

Before mounting the outside sensor, perform the following system check!

1. Insert batteries in outside unit.
2. Place outside unit on table near inside unit.
3. Aim the “bulls-eye” of the OU toward the IU.
4. Observe operation for several minutes. The temperature should be reading in both areas on top in screen 1.
5. If system checks out – proceed to next step. If not, replace batteries with new, high quality batteries and repeat test.

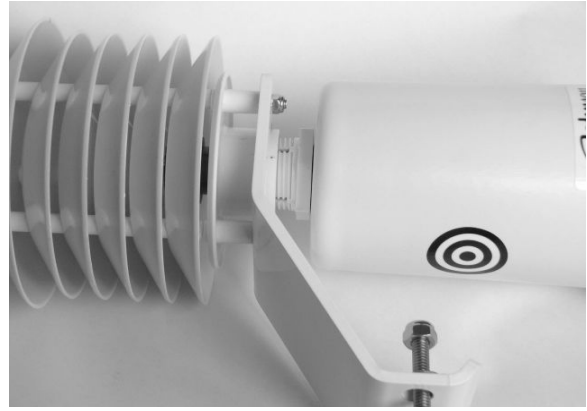
Make sure Inside Unit is situated to face out a window, if possible. Take OU outside to general vicinity of proposed installation. Point “bulls-eye” toward IU and observe readings on IU. The outside temperature should be indicated on screen one. Observe for 5 minutes, if EEE is indicated on IU the units are not within communication range. Adjust placement of units until readings are continuous. The distance can be up to 100 feet, but every wall will subtract from that distance. Avoid communication through steel walls. If system checks out, go to next section for installation requirements.

**The Sensor must be correctly mounted into the Radiation Shield.
Insert the grey PVC nipple into the white nut on the Radiation Shield and hand-tighten the nut.**

**NOTE: The nut only has to be tight enough to hold the weight of the assembly.
Over-tightening can crack the nipple and cause problems when servicing the Sensor.**



1. Lay Outside Unit Components on table



3. Hand tighten nut into shield



2. Start nut and Insert grey nipple.

Mounting the Sensor Assembly

The Outdoor Sensor Assembly can be mounted to a pole using the supplied U-bolt or on a flat surface. Mount the Assembly in a place where it can be easily maintained and inspected. If the Assembly is mounted to the side of a building, make sure it is at least 18" away from the building to ensure accurate temperature readings. Avoid mounting the sensor where it is subjected to thermal warming from the side of a building or away from receiving the effects of the wind, sun, etc.

If the Sensor is mounted much higher than the receiver – as on a roof or a pole – **don't tilt the sensor** to line up the bull's-eye.

Aligning the Sensor with the Inside Unit

Once the Outdoor Temperature Sensor Assembly is connected, aim one of the bull's- eyes toward the Inside Unit (do not try and tilt the sensor). Just point the bull's-eye toward the inside unit and it should connect, as the Outdoor Sensor transmits radio waves in a horse-shoe pattern.

To assure the best reception, use the following guidelines:

1. Locate the outside transmitter where it can be pointed toward the inside sensor – the bull's eye should point toward the building where the Inside Unit is located.
2. Orient the back of the Inside Unit so it is facing toward the Outside Sensor. If there were no walls, imagine you could look at the face of the Inside Unit and look out to see the bull's eye pointing to you.

Ensuring Good Reception

In order to maximize reception between the Outdoor Sensor and Inside Unit, ensure the following:

- The black antenna wire on the back of the Inside Unit is in the "up" position.
- The Inside Unit is placed within 100 feet of the temperature sensor. Avoid basement locations where concrete walls may interfere with transmission.
- In order to maximize reception, imagine a plate attached to the back of the receiver. To catch the full signal, the plate should face the signal and be perpendicular to it. If the Inside Unit is angled, it won't catch the entire signal and might miss some transmissions.
- In the event of a missed transmission, the Inside Unit will display "EEE" on the outdoor temperature screen. Sometimes this will happen if the signal is interrupted. However, if the "EEE" is showing up throughout the day, check the alignment of the sensor, the orientation of the Inside Unit and if the Sensor is within 100 feet of the unit.

Cleaning the Radiation Shield

To clean the Radiation Shield, simply brush out any debris or spider webs, being careful not to damage the probe on the Sensor. Cleaning is easier if you unscrew the Sensor from the Shield and take the unit down.

Basic Troubleshooting

The Inside Unit sometimes displays “EEE” on the outdoor temperature screen.

Occasionally, the signal will get interrupted. As long as “EEE” isn’t constantly being displayed, this does not effect the normal operation.

The Inside Unit always displays “EEE” on the outdoor temperature screen.

The Inside Unit and the Outdoor Sensor may not be communicating correctly. Ensure that the Unit and Sensor are properly aligned. Batteries may be weak.

The Inside Unit displays “bbb” on the outdoor temperature screen.

The batteries in the Outdoor Sensor need to be replaced.

The unit reads wrong, the unit seems “frozen” or operation is not normal.

1. Un-plug the inside unit from the power and plug back in. This will re-set the communications.
2. Take the batteries out of the outside unit and re-install.

For more Troubleshooting questions/answers, please visit our website at

www.theDaywatcher.com or call 269-343-1221.

Return Policies & Procedures

If you need to return a unit, you must obtain a Return Merchandise Authorization (RMA) number from Johnson Degree Day. You must ship the product(s), properly packaged against further damage, back to Johnson Degree Day at your expense with the RMA number clearly marked on the outside box and on any enclosed paper work. Also prepare a brief written description of the problem on your company letterhead and include it in the packaging.

Johnson Degree Day is not responsible for any package that is returned without a valid RMA number or for the loss of the package by any shipping company.

Warranty

THE DAYWATCHER SYSTEM IS WARRANTED TO BE FREE FROM DEFECTS IN WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR FROM THE DATE OF ORIGINAL PURCHASE. DURING THE WARRANTY PERIOD, JOHNSON DEGREE DAY WILL, AT ITS OPTION, EITHER REPAIR OR REPLACE PRODUCTS THAT PROVE TO BE DEFECTIVE. THIS WARRANTY IS VOID IF THE PRODUCT HAS BEEN DAMAGED BY CUSTOMER ERROR OR NEGLIGENCE, OR IF THERE HAVE BEEN UNAUTHORIZED MODIFICATIONS.

Technical Support

If you have technical support questions, contact us at:

Phone: 269-343-1221 or at information@theDaywatcher.com

Visit our website for the latest updates and FAQs.

3800 Wynn Road, Kalamazoo, MI 49048

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