



Ethermometer

Temperature Monitor with
Built-in Web and Email Servers

Ethermometer Product Manual



The Ethermometer monitors temperatures in equipment rooms, rack rooms, unoccupied homes, transmitter or remote equipment sites, wherever you need to monitor and report temperature!

The Etherstuff Ethermometer graphs temperature on a built-in web server AND emails you temperature alarms. It can monitor two auxiliary closures and email alerts when they are triggered. Plus it's SNMP V1 compatible.

***Information you'll need to know
(you might need to get from your IT staff)
about your network:***

Package Contents:

- Ethermometer
- 6' 6P6C modular cord
- TS-1 temperature sensor
- Plug-in power supply
- This manual

If you want the unit to be on a static IP address, you'll need to have a "clear" address for it.

The name or IP address of the email server that supports the address that the Ethermometer sends email alerts to.

The SMTP port used by your email server (usually 25).

The email address you want to send temperature and closure alarms to - Temperature, Closure1, and Closure2 can all have different email-alert destination addresses as long as they're on the same email server.

If you don't have DHCP, your network's gateway address and subnet mask.

Be sure to check the
etherstuff.com website
for other cool products
and accessories!

www.etherstuff.com

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Thank you for purchasing the Etherstuff Ethermometer !

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- 6' 6P6C modular cord
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- Plug-in power supply
- This manual



Accessories for the Ethermometer



The PF-1 Power Failure monitor.
Use with a closure input of your Ethermometer to monitor status of non-UPS-protected power with your UPS-protected Ethermometer.

Set the closure input up as “Alarm when open.”

When power fails, the relay inside the little plastic box releases and the Ethermometer generates an email alarm.

Custom temperature probes available. Email us with your needs: support@etherstuff.com

More from Etherstuff

The Etherterminal model ET-1 bridges the gap between your office LAN, WAN, or even public internet network, and the serial devices you need to access.

EtherStuff's Etherterminal ET-1 single port terminal server.

- LAN enables “serial-only” devices for connecting to your Network.
 - M&C or CONSOLE connections to routers.
 - Thermostats
 - Modems
 - Industrial equipment
 - Satellite Receivers & Uplinks
- Access unlimited numbers of serial-only devices from any computer on your network via Telnet.
- Includes Etherstuff's Virtual Serial Port Driver for Windows (XP or 2000).

Check with your
Etherstuff dealer or the
etherstuff.com website
for additional
innovations!



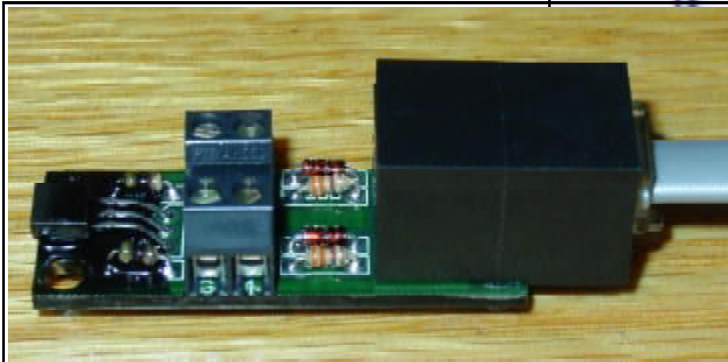
The Ethermometer in its simplest installation:

Connecting your Ethermometer to Power, LAN, and the Temperature Sensor, following the directions beginning on Page 6 will get you up and running in no time.

The Red power indicator should flash momentarily about once per second (like a heartbeat) to indicate that the ET-2 is powered up and running.



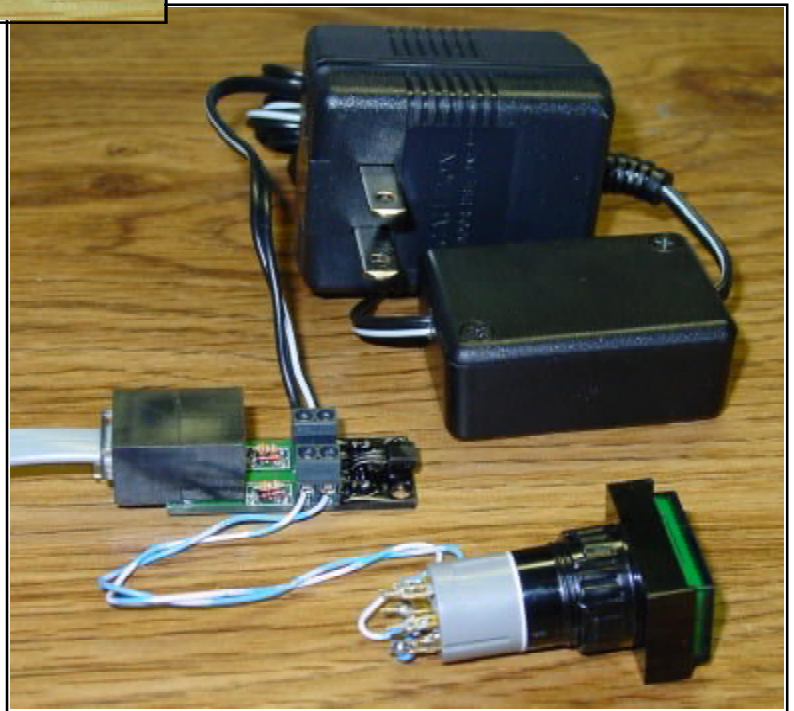
The Sensor Board



LAN, and Temperature Sensor.

The Ethermometer's Sensor board provides an advanced temperature sensor and two "closure inputs," brought out to two-pin screw terminals on the sensor board.

The optional Power Fail sensor and a user-supplied switch are shown here attached to the Closure1 and Closure2 screw terminals, respectively, on the Sensor board. The pushbutton switch shown here could be replaced with a door-entry switch, float switch, mechanical limit switch, photo-detector, or some other variety of dry-contact or isolated open-collector style "closure."



Steps for setting up your Ethermometer

1) Connecting to your ET-2:

- a) Download the Etherset utility from www.etherstuff.com/support.html

This utility makes it easy to find the ethermometer's DHCP-assigned IP address, or to set a static IP for the unit. Save the utility to your desktop or somewhere else that is easy to get to – you'll be using it shortly.

- b) Plug the temperature sensor into the ET-2 using the supplied modular cable.
c) Connect the ET-2 to your LAN using a standard (straight-thru) patch cable.
d) Power up the unit using the power supply provided in the ET-2 package.
e) Run the Etherset utility, enter the serial number of your ET-2 and click Find Device.

Your serial number is located on the back panel of the unit and on the shipping box.

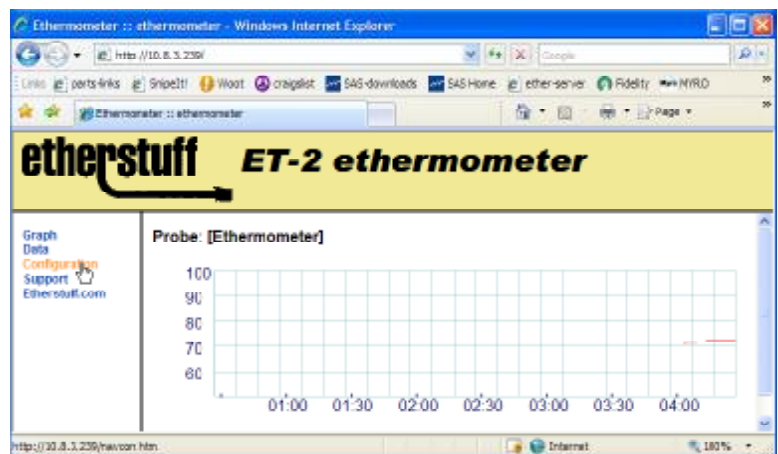


If your LAN supports DHCP, your ET2 will have a meaningful IP address already in the IP address field of Etherset; write it down and click close. If your LAN doesn't support DHCP or you wish to assign a Static IP to your ethermometer, enter the static IP in the IP address field and click configure, then close.

You can now browse to the ET-2's internal webserver for the remainder of the setup. Simply type the IP address of your ET-2 into the URL / address box of your favorite web browser and you should connect and see a webpage that looks a lot like this one:

Configuration:

Click on Configure and a list of configuration menus will drop down. Next click on General.



2) General Device Settings:

This Config page allows you to set up a unique name for your ET-2. Enter a name for your ET-2's temperature probe, then, if desired, change the temperature scale (Celsius or Fahrenheit). The ET-2 probe is designed to be accurate within a +/- 1 degree C range. In some circumstances you may wish to offset the displayed temperature from the actual sensor temperature.

Probe Bias is factory preset to "0". This is the "neutral setting." Adjust according to the following table to adjust the reading up or down.

Be sure to click SAVE for the changes to Name, Temperature Scale, Probe Bias, email engine status, and SNMP trap status to become effective.

Adjust Displayed Temp Down	Adjust Displayed Temp Down
Probe Bias Setting	Amount of Adjustment
15	-1
14	-2
13	-3
12	-4
11	-5
10	-6
9	-7
8	-8

Adjust Displayed Temp Down		Adjust Displayed Temp Down	
Probe Bias Setting	Amount of Adjustment	Probe Bias Setting	Amount of Adjustment
15	-1	0	no change
14	-2	1	+1
13	-3	2	+2
12	-4	3	+3
11	-5	4	+4
10	-6	5	+5
9	-7	6	+6
8	-8	7	+7

3) Clock

Set the unit's built-in Real time clock in 24 hour format with leading zeroes for times between midnite and 10 AM (e.g.: 07:30:00 for 7:30AM). Set the date as mm/dd/yy (e.g.: 01/05/08 for January 5th, 2008)

4) Email Server:

Click on Email server to bring up the following configuration page.

The email server name or IP address, smtp port number (usually 25), and "from" email address are set here.

The from email address can be one that helps to identify the message as coming from your ethermometer. Click Save to activate these settings.

5) Alarms

These are the three config pages where you set up the behavior of your email alarms for temperature, closure 1, and closure 2. The temperature thresholds and closure settings are also used for SNMP traps if you enable and set them up (see Network / SNMP settings).

To begin, click on Thermometer.

Set the high temperature threshold, low temperature threshold, email address for alarms, and alarm repeat time here. When the temperature is higher than the high temp threshold or lower than the low temp threshold, the ET-2 will send an email to the email address set here. As long as the temperature is outside of the threshold values, the unit will send emails based on the alarm repeat timer setting. Click Save to activate these settings.

The screenshot shows the 'etherstuff ET-2 ethermometer' web interface. On the left is a navigation menu with links: Graph, Data, Configuration, General, Clock, Email server, Alarms, Thermometer (highlighted with a mouse cursor), Closure1, Closure2, Network, Support, and Etherstuff.com. The main content area is titled 'Temperature Alarm settings' and contains the following fields: 'High temperature:' with a value of 75, 'Low temperature:' with a value of 50, 'Email/pager/phone address:' with the value 'etheralarms@mydomain.com', and 'Alarm repeat time:' with a value of 1 minute. A 'Save' button is located at the bottom right of the settings area.

Closure 1 and Closure 2

The ethermometer can also monitor the status of two external closures and report changes in status via email. The temperature probe has two 2-pin screw terminals on it. One is marked 1 and G, the other is marked 2 and G.

These pages set up the two alarm closure inputs. Here you can: customize the Closure name; set the closure input to Alarm when closed, alarm when open, or disabled; set the email destination for this alarm, and set how often new closure alarms will repeat, to minimize emails from a “chattering” or bouncing closure.

The screenshot shows the 'etherstuff ET-2 ethermometer' web interface for 'Closure 1 Alarm settings'. The left navigation menu is identical to the previous screenshot, with 'Closure1' highlighted by the mouse cursor. The main content area is titled 'Closure 1 Alarm settings' and contains the following fields: 'Closure name:' with the value 'Closure 1', 'Closure type:' with a dropdown menu set to 'Alarm when closed', 'Email/pager/phone address:' with the value 'etheralarms@mydomain.com', and 'Restrict to 1 alarm per:' with a value of 1 minute. A 'Save' button is located at the bottom right of the settings area.

Click Save for the Closure settings to become effective. Be sure to set up the configuration for Closure 2 as well before continuing on to Network settings.

IMPORTANT NOTE:

The Ethermometer's closure inputs are designed to be used with “dry” closures or ground sink outputs only. Do NOT connect voltages to these inputs! See Appendix A: Closure NOTES for some common closures you might want to monitor with your Ethermometer. If you have nothing connected to one or both of the Ethermometer's closure inputs, we recommend that you Disable them.

Network:

6) TCP/IP settings.

When DHCP is enabled, all of these settings should be filled in automatically.

If you wish to change the device to a static IP, enter the new IP address (you have checked to make sure it's not already occupied... right?), make any other changes (if required) to the Manual settings, change the DHCP Client status to Disabled, then click Save. If you change the IP address, you'll have to re-point your browser at the new IP address to continue.

TCP/IP settings	
Automatic	Manual
DHCP Client: Enabled	IP address: 10.8.3.239
	Gateway: 10.8.3.1
	Subnet Mask: 255.255.255.0
	DNS Server: 66.90.130.101
Save	

IMPORTANT: If you are unsure of the settings you should use for IP address, Gateway, Subnet Mask, or email server, we urge you to contact your network administrator or IT staff. Programming in the wrong values for any of these settings can cause problems on your network.

7) SNMP setup. (optional – leave disabled if you don't have SNMP or don't want your ET-2 monitored by your SNMP server)

If you are unfamiliar with how your organization's SNMP monitoring server is set up, defer this configuration to someone who is.

SNMP is turned OFF by default from the factory. Enabling SNMP for interaction with your enterprise SNMP monitoring software is accomplished within the three web pages under SNMP settings. Once the SNMP settings are configured and your SNMP monitoring server is able to see the ET-2, you may want to go back to the General settings page to enable SNMP traps as well.

Click Done (Save) when you are finished with the SNMP setup.

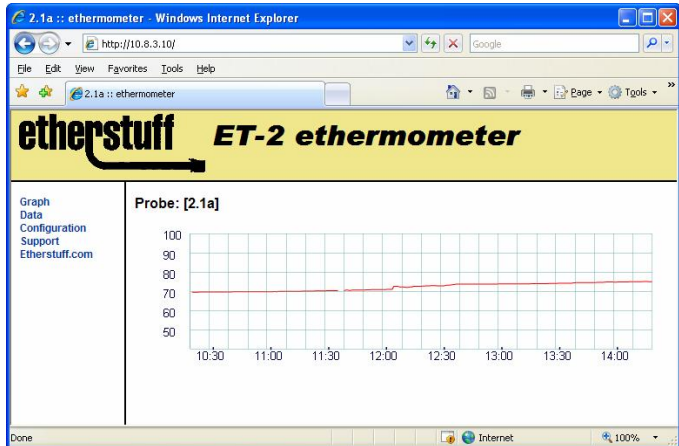
The MIB for the Ethermometer can be downloaded from etherstuff.com/support.

SNMP v.1 settings (1 of 3)	
SNMP Client: Disabled	Trap Destination: 0.0.0.1
	Resolved: 0.0.0.1
Receive Port (161): 161	Trap Port (162): 162
Next (2 of 3)	

SNMP v.1 settings (2 of 3)	
Read-write Community String	
Trap Community String	
Previous	Next (3 of 3)

SNMP v.1 settings (3 of 3)	
sysLocation	
sysContact	
sysName	
Previous	Done (Save)

Using your model ET-2 Ethermometer

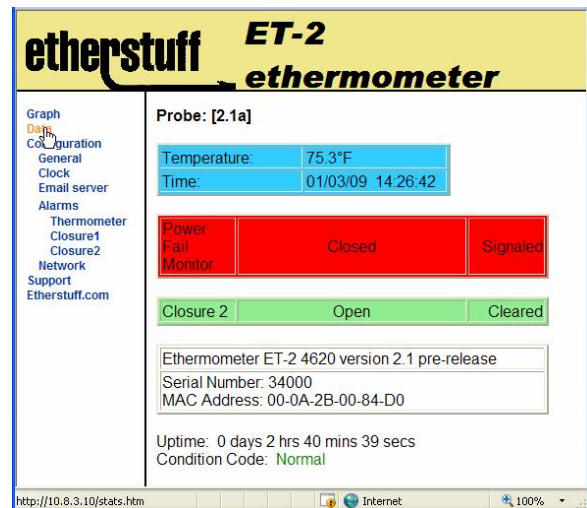


Clicking on Data will bring up the instantaneous values of the temperature sensor and the two closure inputs. To update the displayed values, click Data again.

The Ethermometer's software version, serial number, and MAC address are displayed on the Data page, as well as unit uptime and condition code.

The emailed alarm for Closure1 being triggered (as shown above) would look like this. →

Click your Browser's refresh button or click on Graph to Load the Ethermometer's main webpage, the temperature Graph. This view summarizes the last four hours of temperature readings.



```
----- Original Message -----
Subject: [Alarm] Closure Power Fail Monitor signaled
Date: 3 Jan 2009 12:26:02 -0800
From: 2.1a <ether2.1a>
To: poweralarm@mydomain.com

Probe: 2.1a
Closure1: "Power Fail Monitor"
State: "Closed"
Time: 14:26:45
Date: 01/03/09
```

Appendix A - Applications for the closure alarm inputs

The closure alarm inputs on the Ethermometer are pulled-up TTL inputs. They are zener diode protected, but are not optically isolated. As such, voltage spikes including static discharge can damage the inputs and possibly the Ethermometer. Because of this we suggest **ONLY** using dry contacts (like normally-open switch or relay contacts) or open-collector ground sinks to trigger the closure inputs.

Some suggested applications:

1) Power fail sensor. Connect your Ethermometer to your UPS protected power. Use a 5Vdc or 12Vdc "wall-wart" plugged in to non-UPS-protected power to energize an appropriately rated (continuous operation) relay with Form-C contacts. Connect the normally closed and common contacts of the relay to one of the closure inputs on the Ethermometer. When power fails, the relay will de-energize, triggering the Closure input. When the power comes back on, the relay will open and clear the closure alarm. If you'd rather not build your own, our PF-1 is available pre-made and ready to connect.

Appendix A - Applications for the closure alarm inputs (cont'd)

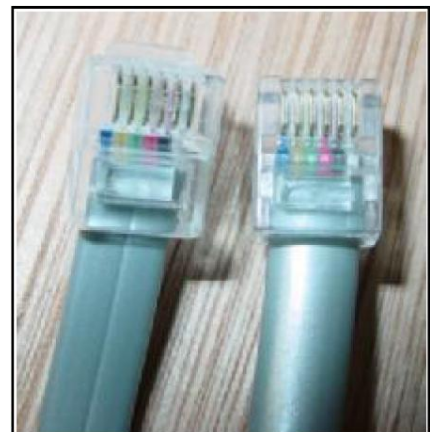
- 2) Magnetic door switch. Wire the closure of a magnetic door switch to a closure input and get email alerts when the door is opened and/or closed (depending on the type of magnetic switch).
- 3) Many varieties of pressure switches can be wired to the closure inputs of the Ethermometer for alerts based on water pressure, air pressure, vehicle passage, and more.
- 4) Mechanical limit switches on machinery, connected to your Ethermometer's closure inputs can alert you by email when they close.
- 5) Light activated sensors, laser detector circuits, noise activated switches, moisture detectors, smoke detectors, manually activated switches, even "doorbell" switches can send you an email alert when they trigger the closure inputs of your Ethermometer.
- 6) Monitoring status closures from other equipment – many broadcasters monitor the status of their PPM encoders or carrier alarms with the ethermometer.

If you find the Ethermometer useful, PLEASE tell your favorite electronics / IT supplier about us! Have them visit www.etherstuff.com.

About the temperature sensor cables:

If you are experienced at making telephone cables with RJ-11 connectors, you can make your own custom length sensor wires.

The wire used for the temperature sensor / closure input connections is six conductor flat phone hookup wire. If you only want to use the temperature sensor, with no closures, you can use the more common 4-conductor wire and connectors. With either type it is important that you orient the RJ-11 connectors so that the locking tabs are on opposite sides of the flat cable. Usually one side or the other will be rounded, or have a line that runs the length of the wire, or some other indication of which side of the wire you are looking at.



SMS to your cell phone via email:

Some cellular carriers have sms-email portals to enable direct email to cell phones via SMS. It is recommended that SMS messages be sent from an SNMP monitoring package instead of directly from your ET-2.

The following information is believed correct as of this writing, but may not have been verified and may be changed by the respective cellular companies at any time. All trademarks./ tradenames listed in this section are owned by the respective cellular companies they are associated with. If advanced protocols are used by the carrier, you may have to use your

T-Mobile: phonenumber@tmomail.net

Virgin Mobile: phonenumber@vmobl.com

Cingular: phonenumber@cingularme.com

Sprint: phonenumber@messaging.sprintpcs.com (not port 25?)

Verizon: phonenumber@vtext.com

Nextel: phonenumber@messaging.nextel.com

where phonenumber = your 10 digit phone number

Important:

Keep in mind that inbound SMS charges by the carrier may apply.

Be sure to check your cellular plan / contract. The repeat email timer setting for Temperature and Closure 1 & 2 can limit how often these messages are sent

Troubleshooting

The power indicator normally blinks its “heartbeat” at approximately 1 beat (blink) per second. If the Heartbeats stops, contact Etherstuff support. If the power indicator is not on and the XMT and/or RCV indicator does not light up when the unit is connected to an active LAN connection, check for proper power supply operation. The Condition Code on the Data webpage can also help troubleshoot issues with LAN configuration.

Warranty: Etherstuff products enjoy a 1 year limited warranty against manufacturing defects. Damage caused by abuse will not be covered by this warranty.

Disclaimer: The manufacturer reserves the right to make changes to this document or the product it describes without notice. The manufacturer shall not be liable for editorial or technical errors made herein. The manufacturer shall not be liable for incidental or consequential damages resulting from the furnishing, performance, or use of the product or this document.

FCC Part15 Information:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: 1) This device may not cause harmful interference, and 2) this device must accept any interference received, including that which may cause undesired operation.

Etherstuff model ET-2



Specifications:

Power Supply Voltage:	9 - 12V DC or AC (internal rectifier/polarity protection)
Current requirements:	~50milliamps at 9-12 VDC
Ethernet Interface:	10BaseT
Protocols:	DHCP, DNS, SMTP, HTTP, SNMP
Web Interface:	Temperature Graphing, Data Display, Configuration
Email:	Separate email destinations for temperature & closures
Temperature sensor:	Accurate to 0.5 degrees C. Lead length can be up to 100' from ET-2 to sensor Uses Standard 6 conductor “telephone” cable and readily available connectors so you can make custom length cables. Range: -30 to +150 degrees F. Not for use in wet locations.

Etherstuff Information:

Etherstuff, 208 W Mimosa Circle, San Marcos, Texas 78666