



**Networked Robotics Corp.**  
825 Chicago Ave, Suite F  
Evanston, IL 60202, USA  
Tollfree: (877) FRZ-TEMP  
(877) 379-8367

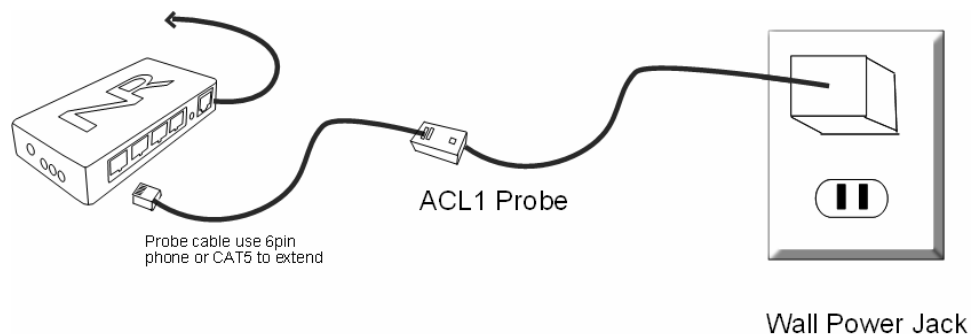
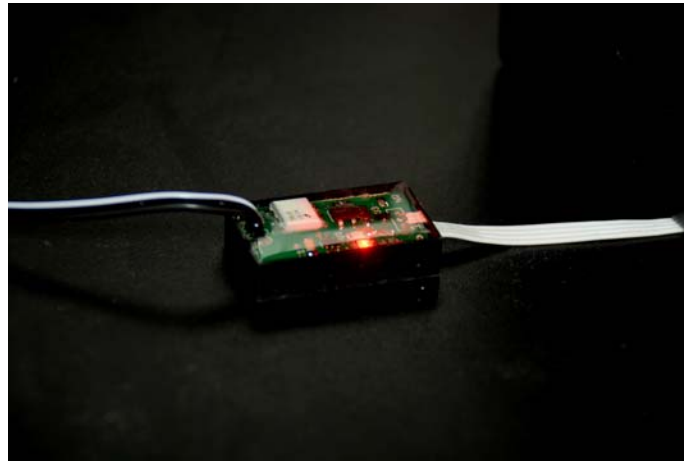
**General:** info@networkedrobotics.com  
**Technical:** support@networkedrobotics.com  
**Website:** www.networkedrobotics.com

## AC Power Probe, ACL1 (#30015)

The Networked Robotics ACL1 power probe is designed to be used as part of the Tempurity System for collecting and monitoring data through computer networks. The ACL1 enables the monitoring of standard wall power as found in power jacks in laboratories and offices. Network-based data collection is enabled through connection of the probe to Networked Robotics' NTMS (Network Telemetry Monitoring System) hardware. One end of the ACL1 probe is plugged into a standard wall power jack, the other is connected to one of the measurement/control ports on the NTMS.

The ACL1 probe reports the status of common 120 Volt wall power to the Tempurity System at time intervals defined by the configuration within Tempurity. Readings are binary, either 120 volts, or 0 volts with no intermediate values. Through the Tempurity Monitor software alarm notification types of e-mail, text message, and voice alarms can be sent when power is not available.

The Tempurity System software is designed for data collection and monitoring in FDA-regulated environments.



Two on-board LEDs indicate the status of network measurement. A red-orange LED indicates the connection status of the probe to NTMS network hardware. This LED provides an instant indication of success during installation, and provides a visual at-a-glance indication that the probe is operational to anyone in the room. An amber LED provides a visual indication of the status of the monitored power – on if power is on, or off if power is off.

The encased circuitry of the ACL1 probe is water resistant and can be used in high-humidity environments. The probe should not be submerged.

## ***Packing List***

This package includes the basic hardware you will need to connect the TPL3 probe to the NTMS.

- (1) ACL1 Power Probe
- (1) RJ-45 Coupler for extensions

Verify that your packaging is complete and contact us if anything is missing.

## ***Electrical Specifications***

The ACL1 probe receives power from the regulated 9-12V DC supplied by the Networked Robotics NTMS hardware. No external power supply is necessary. The probe does not derive power from the wall socket. To power the probe, simply plug the ACL1 into the NTMS. The NTMS must be active in order for voltages to be stored in the Tempurity System.

## ***Physical Installation***

ACL1 power probes are designed to be used in network environments. You can connect the probe to an NTMS in your office or lab, or you may wish to patch the ACL1 into a wall plate, where it is connected to an NTMS mounted in a network closet.

The NTMS network device power must be supplied in order for the system to detect power-outage events. By placing the NTMS units in network closets, power and network backup can be more easily achieved than if many NTMS units, all requiring power backup are placed in multiple laboratories or offices.

Note that the Tempurity System can be set to send alarm notifications both for a power outage event, and for a communications failure – that is - the failure to obtain power status as expected. If NTMS power is absent a communications alarm will be sent rather than a value alarm (voltage alarm). The time thresholds that are used to determine the creation of a communication alarms and value alarms (voltage alarms) can be different. See the Tempurity System User's Guide for more information.

### **Wall plate installation**

In offices or laboratories that are well populated with network jacks, power status from every room in the entire building can be visible to anyone on the network in just a few hours. Using this method of installation NTMS units are mounted on rack hardware and shelves in a network closet. Each NTMS port is then patched to a network wall plate. In the lab or room the AC probe is connected to a standard wall outlet.

### **Attaching the ACL1 Probe**

Secure the probe at the monitored site using the “dual-lock” provided on the back of the ACL1 housing. The “dual-lock” sticks best to metal or plastic surfaces. It may not adhere as well to

surfaces such as drywall or wood, or to porous materials such as concrete. The probe can be easily and immediately attached to a plastic wall power plate or to the AC/DC converter part of the probe. The probe should be attached such that the LED status lights are visible in the room.

### Extensions

The reach of the probes can be as far as 400 feet away from the Networked Robotics NTMS network hardware. You can easily extend the length of any connection using the included RJ-45 coupler and either 6-pin phone cable or CAT5.

If the NTMS is powered up, and the CAT5E cable connection is made correctly between the probe and the NTMS, the red-orange LED on the probe will illuminate.

### Storage

Do not store or use the Networked Robotics ACL1 Power-sensing Probes at temperatures above 120C.

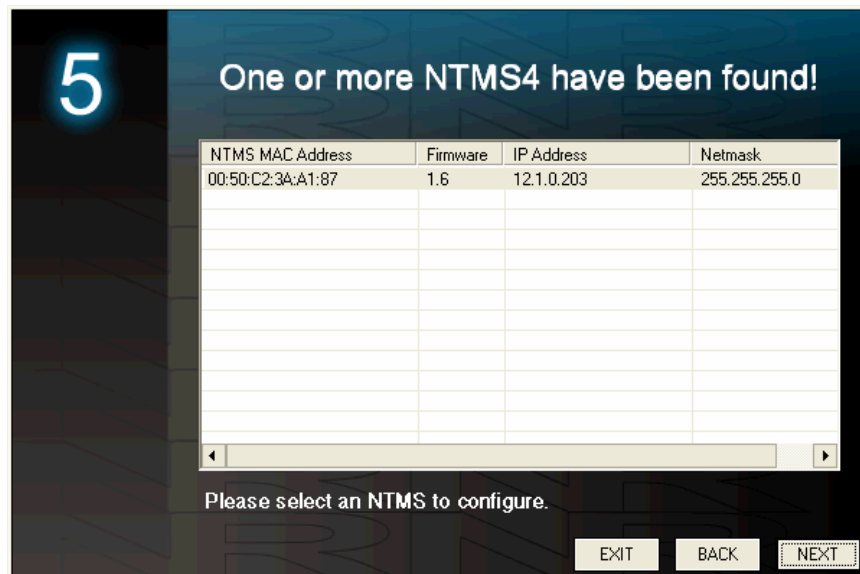
### Caution

The ACL1 is connected to the standard wall plate via a 9 Volt DC power supply. Never replace this power supply, sometimes called a “wall wart” with a standard 120 Volt power cable.

## Configure the NTMS

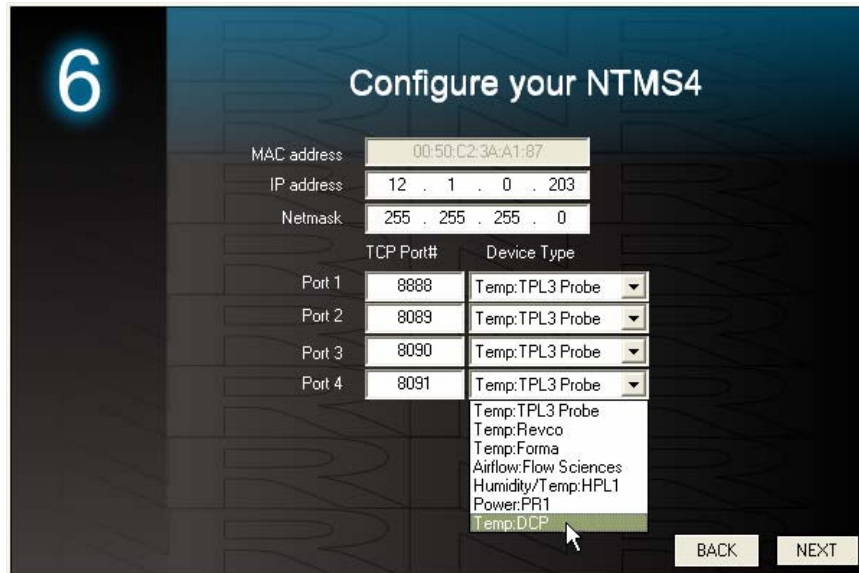
Configure the Networked Robotics NTMS measurement port for the new probe type. This is done by running the latest version of the NTMS Configuration Wizard from any PC on the same subnet as the NTMS to be configured. You can obtain the configuration wizard from the download section of the Networked Robotics web page. New probe types are being added periodically to the wizard and the screens below may change. Run the wizard from the same local area network as the NTMS and verify that the NTMS is discovered

NTMS hardware must be running firmware revision 1.9 or higher. If it is not, stop the installation and upgrade your NTMS hardware’s firmware with the NTMS Upgrade Wizard available from the Networked Robotics download page (not shown).



Select the NTMS that you wish to configure for use with your AC Probe, and proceed to the “NEXT” screen. We will assume the IP address information is already set for your NTMS; if not,

see the NTMS installation guide. To proceed, go to NTMS port where the ACP1 is connected, and under the “Device Type” drop down, select “Airflow Flow Sciences” as shown.



Click “NEXT” to complete the NTMS configuration.

## Testing through the Network

Once the configuration is complete we recommend testing the ability to make network temperature measurements by using the “Telnet” utility from any PC. This commonly-used network utility sends simple network commands that will elicit a temperature reading from the TPL3. From Windows choose “START”, then “RUN”, and then type “CMD” and return. At the black screen type “Telnet” *IP Port*, where *IP* is the IP address and *Port* is the network port address as selected by your use of the NTMS Configuration Wizard as described above. If you are successfully connected through the network you will see a blank screen. Type a capital “A”. A number indicating power status (120 or 0) and the associated checksum value should be returned. For more about debugging network connections to probes see the appendix of the Tempurity System User’s Guide.

For use with the Tempurity System, you will need to add the new device to the Tempurity Server configuration. See the Tempurity System User’s Guide and the section on server configuration for more information.

## Operation

The NTMS port must be connected properly, and configured for the correct device type (Airflow) in order for the LED to light. If the wrong configuration type (e.g. Temperature of Revco Compatible devices for example) is selected the probe LED will not be on.

The NTMS network hardware continually reads power status from the ACL1. The most recent values are available for network requests by the Tempurity System. Because each reading takes about 7 seconds, the worst-case time resolution for a power failure is more than 7 seconds.

## Unique IDs

The ACL1 probe does not currently support unique IDs.

## ***Communications Specifications***

The ACL1 Power probe communicates to the NTMS via a one-wire protocol specific to the Dallas DS2405 integrated circuit. For more information see the datasheet for this Dallas/Maxim part number.

## ***Physical Specifications***

Weight:	8 grams (with dual lock)
Length:	3.17 cm
Width:	1.90 cm
Height:	0.70 cm

Does not include wire or wall adapter section of the probe.

## ***Support***

If you need assistance with your ACL1 probe or other products, contact Networked Robotics by phone at 877-FRZ-TEMP (877-379-8367) or by email at [support@networkedrobotics.com](mailto:support@networkedrobotics.com)