

USER MANUAL

EMERW-020-R3, EMERWE-010-R3

ALERTWERKS ROPE WATER SENSOR



BLACK BOX[®]

CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

Water can enter a building in many different ways and, in some cases, remain undetected. This can cause damage and problems to sensitive electronic equipment. Computer and mainframe rooms which have a false floor and ceilings could harbor water which is only detected after a problem occurs.

The Rope Water Sensor is capable of detecting the presence of, or non-presence of, water. It contains a microprocessor-controlled, capacitance-measuring circuit which is far more precise than commercially available standard water detectors which measure the resistance of water.

The detector provides feedback to the gateway's graphic interface which will indicate the presence/absence of water with a Normal/Alert, or Critical indication. The gateway will retain any error condition until it is read via a snmpget. Therefore, if it encounters a critical condition at any time, it will report that condition before it returns to a normal state.

The value of the status for the SNMP OID for the Rope Water Sensor can be "Normal," "No Status," "Critical," or "Sensor Error."

Rope Water sensor OID:

For a switch type sensor on RJ45#1 the OID for the status is .1.3.6.1.4.1.3854.1.2.2.1.18.1.3.0

1.1.1 PRODUCT FEATURES

- ♦ ON/OFF ALARM SIGNAL OF WATER DETECTED
- ♦ ACCURATE, COST-EFFECTIVE, WATER-DETECTING SYSTEM
- ♦ SUBMERSIBLE ROPE PORTION OF SENSOR
- ♦ SENSOR TYPE - OPEN/CLOSED CONTACT SWITCH
- ♦ POWERED BY THE GATEWAY (NO ADDITIONAL POWER NEEDED.)
- ♦ GATEWAY AUTO DETECTS THE PRESENCE OF THE ROPE WATER SENSOR
- ♦ CONNECT UP TO 2 ROPE WATER SENSORS PER EME160A OR EME161A-R2
- ♦ CONNECT UP TO 8 ROPE WATER SENSORS TO THE EME168A.
- ♦ FULL AUTONSENSE, INCLUDING DISCONNECT ALARM IF CUT, BROKEN, OR DISCONNECTED
- ♦ SENSING ROPE CABLE CAN BE A MAXIMUM LENGTH OF 100 FEET (30 METERS).
- ♦ NON-SENSING CABLE IS 20 FEET IN LENGTH.
- ♦ CAN BE EXTENDED UP TO 200 FEET (60 METERS) USING NORMAL CAT5/6 LAN CABLE FROM THE RJ-45 SENSOR PORTS.
- ♦ MEASUREMENT RANGE: WET OR DRY (-20 TO +60° C)



CHAPTER 1: INTRODUCTION

TABLE 1-1. SPECIFICATIONS

SPECIFICATION	DESCRIPTION
Measurement Range	Wet or dry
Sensor Type	Open/Closed contact input switch
Measurement Rate	Multiple readings every second
Indicators	Status LED
Operating Temperature	4 to 140°F (-20 to +60°C)
Pull Force Limit	Not to exceed 50 lb.
Bend Radius	2" (50mm) minimum
Pressure	Loads greater than 20 lb. (9kg) per linear inch at 68°F (20°C) may immediately trigger an alarm.
Max Length	The Rope Water Sensor can be extended up to 200 feet (60 meters) from the port on the gateway. The sensor rope has a maximum length of 100 feet (30 meters).
Power Source	Powered by the gateway
Power Consumption	Typical 125mWatt, 25mA



CHAPTER 2: ASSEMBLY

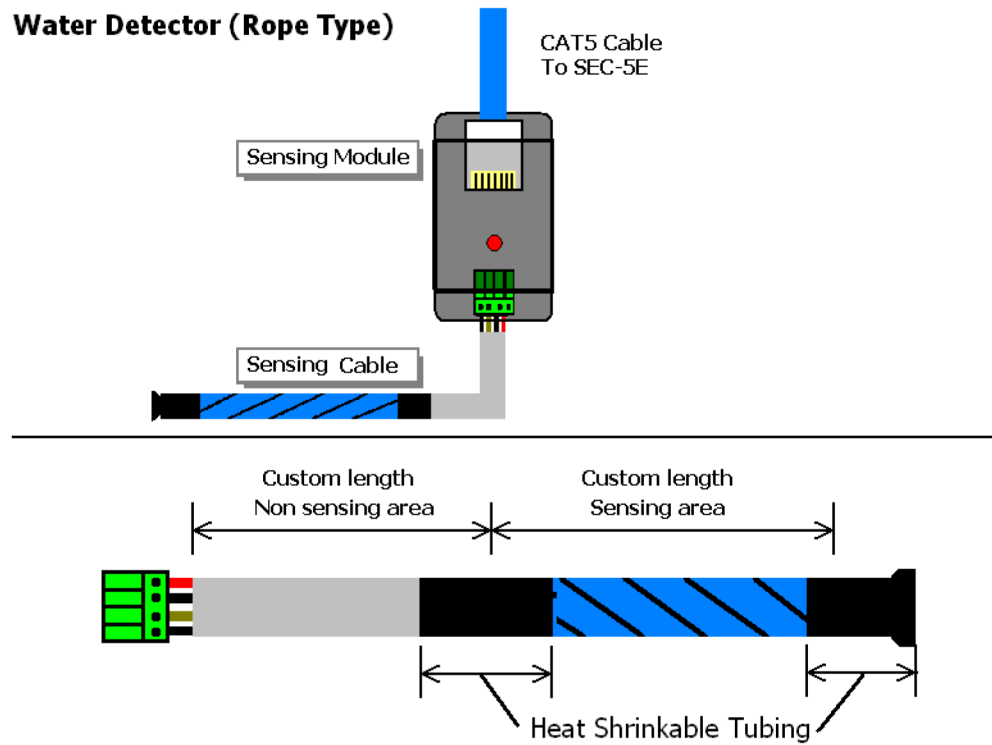


FIGURE 2-1: ASSEMBLY DIAGRAM

CHAPTER 3: CONFIGURATION

3.1 ROPE WATER SENSOR CONFIGURATION

General configuration steps:

1. Plug the sensor into one of the RJ-45 ports on the rear panel of the unit or expansion module.
2. Point your browser to the gateway's IP address (default IP address: 192.168.0.100).
3. Log in as the administrator using your administrator password (default is "public"). You will then be taken to the summary page.
4. From the summary page, select the "Sensors" tab. The layout of the next page will vary depending on your unit so refer to your unit's manual.
5. You should now be able to set up your sensor's thresholds. The low critical, low warnings, normal, high warnings, and high critical values can be set from this page.

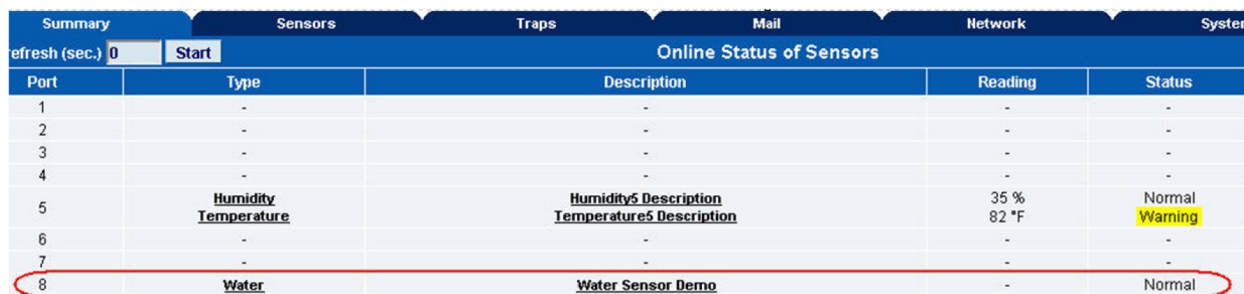
Sensor-specific settings:

Status:

- If the sensor is offline, the status is "No Status."
- If the sensor is online, and there is no water detected, the status is "Normal."
- If water is detected, then the status is "Critical."
- If, at any time, communication with the Rope Water Sensor is lost, the Rope Water Sensor's status is changed to "Sensor Error."

3.1.1 CONFIGURING THE ROPE WATER SENSOR ON A EME102A-Rx, EME105A-Rx, OR EME108A-Rx UNIT

The Rope Water Sensor shows the "Normal" status in Summary page after connecting the sensor.



Summary				
Online Status of Sensors				
Port	Type	Description	Reading	Status
1	-	-	-	-
2	-	-	-	-
3	-	-	-	-
4	-	-	-	-
5	Humidity	Humidity's Description	35 %	Normal
6	Temperature	Temperature's Description	82 °F	Warning
7	-	-	-	-
8	Water	Water Sensor Demo	-	Normal

FIGURE 3-1: SUMMARY PAGE SHOWING SENSOR WITH NORMAL STATUS

Use the "Sensors" page and the Water Detector sensor settings in the gateway's web interface for configuring the Rope Water Sensor's settings.

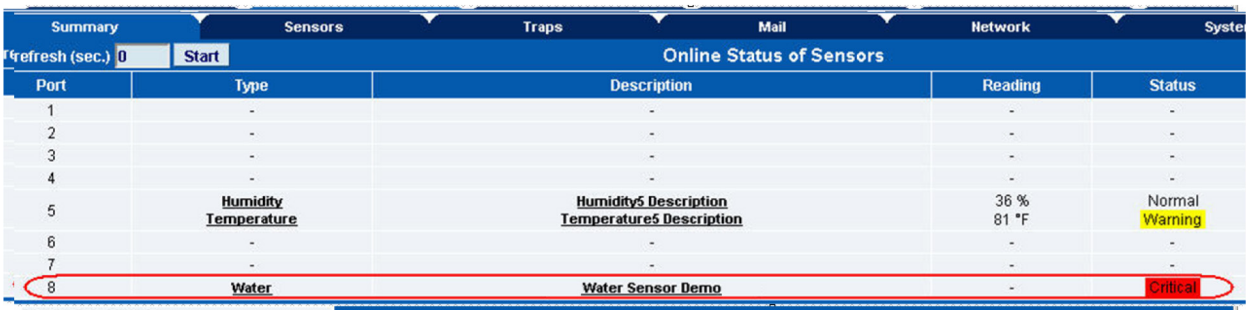


Sensor Settings	
Environmental	Water Sensor Settings
Temperature	Port 8
Humidity	Description Water Sensor Demo
Water Detector	Status Normal
Airflow Sensor	Sensor Online/Offline Online
Contacts & Drivers	Go Online/Offline Online
Dry Contacts & Drivers	Save Reset
4-20 mAmp	
Dry Contacts (9 - 68)	
Power	Sensor Controlled Relay Sensor Controlled Siren Sensor Status Filters

FIGURE 3-2: SENSORS TAB WITH SETTING OPTIONS

CHAPTER 3: CONFIGURATION

The Rope Water Sensor shows a “Critical” status on the Summary page after detecting water.

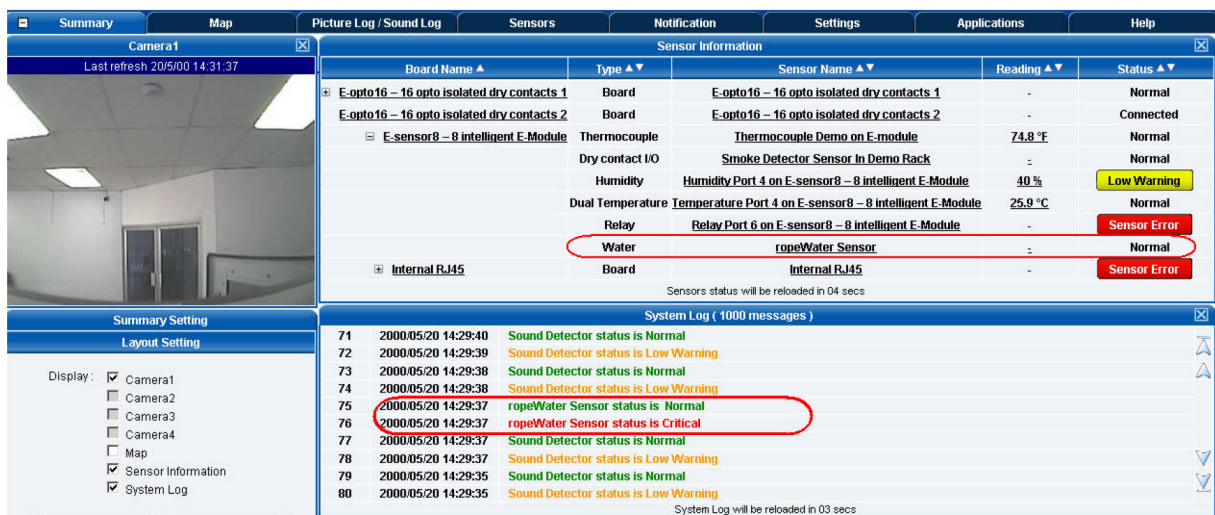


Port	Type	Description	Reading	Status
1	-	-	-	-
2	-	-	-	-
3	-	-	-	-
4	-	-	-	-
5	Humidity	Humidity5 Description	36 %	Normal
6	Temperature	Temperature5 Description	81 °F	Warning
7	-	-	-	-
8	Water	Water Sensor Demo	-	Critical

FIGURE 3-3: STATUS PAGE SHOWING CRITICAL SENSOR STATUS

3.1.2 CONFIGURING THE ROPE WATER SENSOR ON AN EME134A-R3 OR EME144A-R2 GATEWAY

The Rope Water Sensor shows the “Normal” status on the Summary page after connecting the sensor. When water is detected, it will show “Critical” on this page and in the syslog:



Board Name	Type	Sensor Name	Reading	Status
E-opto16 – 16 opto isolated dry contacts 1	Board	E-opto16 – 16 opto isolated dry contacts 1	-	Normal
E-opto16 – 16 opto isolated dry contacts 2	Board	E-opto16 – 16 opto isolated dry contacts 2	-	Connected
E-sensor8 – 8 intelligent E-Module	Thermocouple	Thermocouple Demo on E-module	74.8 °F	Normal
	Dry contact I/O	Smoke Detector Sensor In Demo Rack	-	Normal
	Humidity	Humidity Port 4 on E-sensor8 – 8 intelligent E-Module	40 %	Low Warning
	Dual Temperature	Temperature Port 4 on E-sensor8 – 8 intelligent E-Module	25.9 °C	Normal
	Relay	Relay Port 6 on E-sensor8 – 8 intelligent E-Module	-	Sensor Error
	Water	ropeWater Sensor	-	Normal
Internal RJ45	Board	Internal RJ45	-	Sensor Error

Time	Message
2000/05/20 14:29:40	Sound Detector status is Normal
2000/05/20 14:29:39	Sound Detector status is Low Warning
2000/05/20 14:29:38	Sound Detector status is Normal
2000/05/20 14:29:38	Sound Detector status is Low Warning
2000/05/20 14:29:37	ropeWater Sensor status is Normal
2000/05/20 14:29:37	ropeWater Sensor status is Critical
2000/05/20 14:29:37	Sound Detector status is Normal
2000/05/20 14:29:37	Sound Detector status is Low Warning
2000/05/20 14:29:35	Sound Detector status is Normal
2000/05/20 14:29:35	Sound Detector status is Low Warning

FIGURE 3-4: STATUS PAGE SHOWING SENSOR STATUS AFTER CONNECTION AND WHEN WATER IS DETECTED

CHAPTER 3: CONFIGURATION

Use the “Sensors” page and the Water Detector sensor settings in the gateway’s web interface for configuring the Rope Water Sensor’s settings.

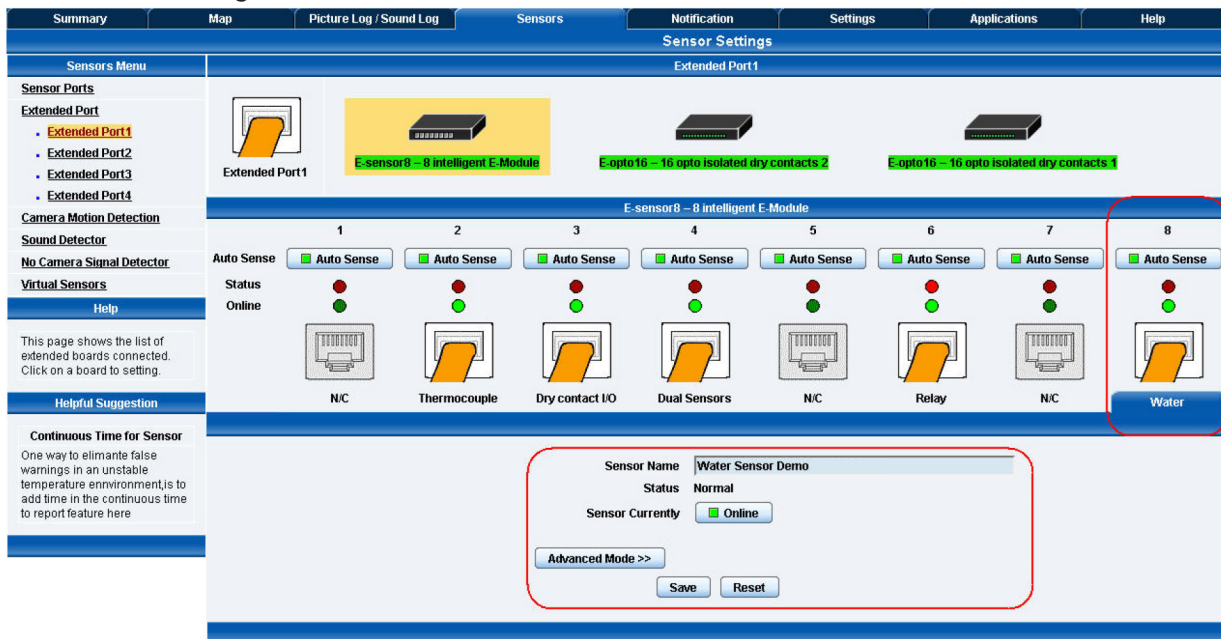


FIGURE 3-5: CONFIGURATION PAGE

CHAPTER 4: INSTALLATION

4.1 ACID DETECTION

In power monitoring situations where backup battery and UPS are used to ensure a constant power supply, there is a risk of batteries leaking harmful battery acid. Use this Rope Water Sensor underneath backup battery banks to give advanced warning of battery acid leaks.

Note: This product is designed for short-term exposure to battery acid only. It was tested with 40% concentrate Sulphuric acid (H_2SO_4).

4.2 MOUNTING THE ROPE WATER SENSOR

When mounting the sensor, we recommend using a standard plastic U-clip or half U-clip with the adhesive base as shown in Figures 4-1 and 4-2 below. These types of clips can normally be found at your local hardware store.

When installing or handling your new Rope Water Sensor, handle the rope portion of the sensor with care, avoiding any twisting, excessive bending, or putting stress on the rope. The internal sensing wires are very delicate and can become damaged easily.



FIGURE 4-1: U-CLIP WITH ADHESIVE BASE



FIGURE 4-2: HALF U-CLIP WITH ADHESIVE BASE

CHAPTER 5: OPERATION NOTES & TROUBLESHOOTING

5.1 OPERATION NOTES

NOTE: The Rope Water Sensor's "wet" to "dry" status change (critical condition to normal condition) can take up to 30 minutes after the sensor has been in contact with or submerged in water.

There are multiple reasons for this:

1. Even when the rope is wiped dry, there could still be water present within the inner windings of the rope cable. This is due to the rope's high sensitivity.
2. You have to consider the time it takes to update the sensor status from the "wet" or critical condition back to the "normal" or non-critical condition, due to the sensor module's internal computation and process to update the base unit's web interface.

5.2 TROUBLESHOOTING

The Rope Water Sensor is sensitive to EMI and also metallic or conductive items and surfaces. Therefore, it should not be installed on a metal floor, for example. It also should not be installed where it will be in direct contact with metal piping or installed near power equipment.

We highly recommend that you test the Rope Water Sensor when it is removed from the packaging and before installation to ensure that it works properly.

If you receive sensor errors in the web interface of the unit when first connecting a sensor:

1. Check the wires which are screwed to the green terminal block, since these wires can sometimes become loose during shipment. See Figure 5-1 below. (Note: Depending on the version of your Rope Water Sensor, it may contain a 2-wire cable or a 4-wire cable.)
2. Check the tail connector contacts if they are not damaged. After checking, reconnect them together as shown in Figure 5-1 below:

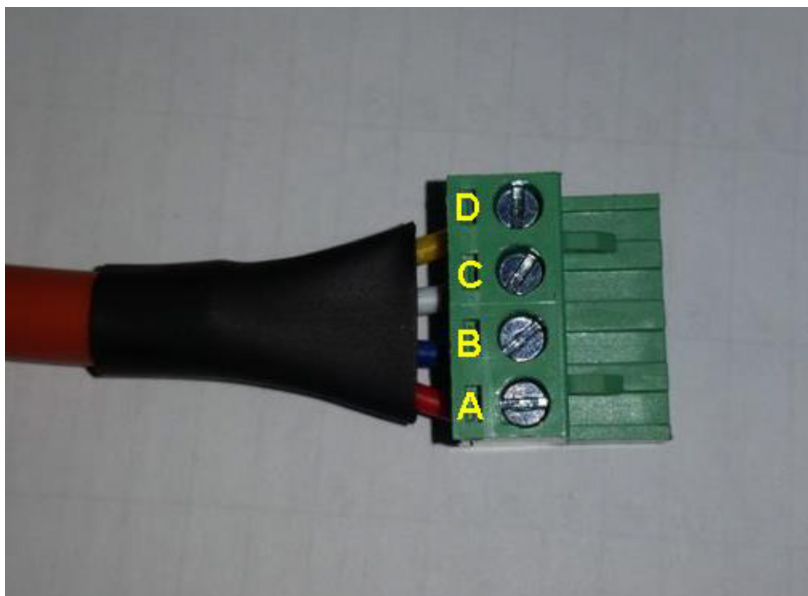


FIGURE 5-1: CORRECT TAIL CONNECTOR CONTACTS CONNECTION

NOTES



APPENDIX A: REGULATORY INFORMATION

A.1 FCC STATEMENT

This equipment has been tested and found to comply with the regulations for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this Quick Installation Guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case, the user will be required to correct the interference at his/her own expense.

A.2 CE STATEMENT

This is a Class B product in a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

A.3 ROHS

This product is RoHS compliant.



APPENDIX A: REGULATORY INFORMATION

A.4 NOM STATEMENT

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.
5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc.
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá de lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.
10. El equipo eléctrico debe ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.
11. El aparato eléctrico deberá ser conectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.
12. Precaución debe ser tomada de tal manera que la tierra física y la polarización del equipo no sea eliminada.
13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las líneas de energía.
16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
17. Cuidado debe ser tomado de tal manera que objetos líquidos no sean derramados sobre la cubierta u orificios de ventilación.
18. Servicio por personal calificado deberá ser provisto cuando:
 - A: El cable de poder o el contacto ha sido dañado; u
 - B: Objetos han caído o líquido ha sido derramado dentro del aparato; o
 - C: El aparato ha sido expuesto a la lluvia; o
 - D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
 - E: El aparato ha sido tirado o su cubierta ha sido dañada.



APPENDIX B: TECH SUPPORT/DISCLAIMERS/TRADEMARKS

B.1 TECH SUPPORT/CONTACT INFORMATION

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