

Overview of the Project

Communications Laboratories EMnet product is a satellite based messaging system designed specifically for use by the emergency management community. The system also uses components of the TCP-IP environment to move messages, receipts, acknowledgements, and maintenance information to our servers. For more information please view the website at <http://www.comlabs.com>. If the customer has any questions at all, or should you the technician face any problems that we can assist you with, please don't hesitate to call us at 321-409-9898. We are well aware of some of the challenges that you will be facing in the installation world, and would like to thank you in advance for doing your best on an installation that will most likely some day play a significant role in saving someone's life. This is a critical system, and as such we need to be sure that our installation procedures are performed in a careful and conscientious manner. Lives literally depend on the proper operation of this system, and therefore we need to make every effort to insure that our installs reflect that consideration.

Technician Tasks for Installation

Unpacking and setting up the EMnet computer and software.

This computer will need to be unpacked and installed in a location predetermined by the customer as indicated on the provided site survey form. In selection of the location the customer should know that the computer should not be installed in an unattended location, but rather at a location where it can be observed for incoming message traffic. The reason for this is that the EMnet messaging system is available to the user as a tool to communicate with state and local authorities if necessary in a secure environment. For broadcast locations the computer will also need a connection to the decoding equipment currently on site at the station. It is the responsibility of the site personnel to provide the Ethernet cabling and connect the output from the computers audio card to the decoder. Some EnDec equipment will require a low-cost inline audio amplifier (such as a Stick-On) to get enough signal. This amplifier is the customer's responsibility.

Connect the computer to the customers' LAN with the site provided straight through Ethernet cable, if the customer has not pre-run the CAT 5 cables as requested you will need to run a piece of CAT 5 cable from a port on the LAN to the location selected for the PC. Set the IP, Gateway, and DNS values as necessary; out of the box these values will not be correct, and must be set to the values that the local IT provides. We request that the IP address assigned to the computer be a fixed IP rather than a DHCP lease if at all possible. We do not require an IP that is accessed via the Internet, but rather an IP within the customers' IP plan that does not change when the DHCP lease expires. Use of a fixed IP address allows us to maintain a higher level of security than one that changes.

You should be able to browse the Internet using Internet Explorer. Download the software from the secured section of the website if the site is providing the computer, otherwise a Comlabs computer will have the software pre-installed. After the computer has the software call Customer Support to commission the system. If you have any problems accessing the Internet please feel free to call us and we will assist you in determining the problem. Typical problems involve customer settings of firewalls and routing equipment.

Assembly, mounting and grounding of the receive antenna

The technician needs to assemble the dish, AZ-EL cap, LNB, and feed horn as per the instructions furnished in the documentation that is included with the dish assembly. The mount was predetermined by the site and should be indicated on the site survey form provided. There are several types of mounts available for the antenna system these you can view on the website and review the mounting procedures. Once the mounting system has been properly installed, it is the technician's responsibility to insure that both the mount and feed cables are properly grounded in accordance with the instructions for grounding found on page 5 of the Channel Master document and per NEC standards.

Align the antenna.

You should use a satellite meter to align the dish, preferred means are a Birdog or a Spectrum Analyzer. To obtain the Azimuth and Elevation for the dish please use the following: <http://www.sadoun.com/Sat/Installation/Satellite-Heading-Calculator.htm>. To align a dish with a Westport Receiver, follow the instructions available for download from the website. Once the cable is run to the receiver and computer you will view the display that shows both the S/N ratio value (EsNo for Westport Research receivers) and the signal

strength value (AGC for Westport Research receivers). A properly pointed antenna will display an S/N of ~7.2 (EsNo ~11.3), and a signal strength of ~60% (AGC near 255).

Run the antenna feed or IFL cable.

The technician needs to run the antenna feed cable into the building as necessary and in accordance with any and all applicable building, NEC, and fire codes that may be in effect in their area. Building penetrations need to be performed carefully and properly sealed to prevent leakage. The connectors used on the coax cable shall be applied by using the proper crimping tool and all outside connectors shall be filled with die-electric gel prior to installation and tightening. We require the use of a grounding block prior to connecting the cable to the EMnet receiver. Typical cable run is under 250ft and done with RG-6 cable. Cable runs between 250 -300 ft need to be pre- approved and completed in RG-11 cable. Plenum cable is not covered in a standard install and needs to be approved through logistics.

Enter the IP address, and connect the receiver to the LAN.

Once the receiver is on signal and displaying good numbers, we can now begin the process of connecting the data from it to the computer. The receiver should have an IP address assigned to it by the IT personnel onsite as indicated on the site survey form. Once we know what it needs to be set to you can follow the instructions for setting the IP address on the receiver. Improper setting of this address will result in an inability to view the receiver statistics from computers on the network. The internal receivers do not need a network IP address.

For external receivers; after the IP address has been set, the technician needs to connect the Ethernet output of the receiver to the on site LAN typically with a straight through cable. If the receiver is going to be connected directly to an EMnet computer without connection to the LAN then a crossover, or peer-to-peer cable should be used. For the external receivers it is also possible using a peer-to-peer cable for the technician to connect directly to the output of the receiver to view the statistics page on a laptop. To do so open your browser and enter the IP address assigned to the receiver. Once the initial page comes up you can click on system stats to review the receiver performance. If these cables are not in place prior to the installation it is the responsibility of the technician to run them.

What happens next?

At this point the dish is properly installed and peaked, the receiver is installed and verified, and the EMnet software is installed and running on the computer. There are still several things to be done before we have a functioning EMnet/EAS system. The technician is the customer's immediate point of contact with Comlabs. Once we have established connectivity, the technician should place the customer directly in contact with our customer support department. At that time they will schedule training, or conduct training on the spot. It is however the technician's task to call the tech support department prior to leaving the site to confirm that the system is up and fully functional on satellite. It is also the responsibility of the technician to pass Comlabs contact information onto the site.

Technician Tasks for Repairs

Once the customer is installed and running there can be issues that arise in regards to the EMnet system. Severe weather, roof work, and improper installation can cause the site to become offline. When this happens, the site will contact the main office and the tech support department will assist in determining the issue. If they cannot fix the issue over the phone; Comlabs may contact an installation technician for the repair. Most of the repair calls are when the dish has been knocked out of alignment. For this, just align the dish as described in the installation section. Occasionally, the issue is a bad LNB or a bad receiver. Comlabs will ship those pieces of equipment to the site for the installation technician to have for the repair. Once onsite, please call our customer support department to assist you in the steps for the repair. You will still need to fill out a site completion form for the work.