2-Position T1/HDSL Environmental Mounting Assembly Model EM02-2xx

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1. General

1.01 The NAC EM02-2xx is a 2-slot wall mountable housing that is designed to house up to 2 (type-200) HDSL-2W/4W, T1 or Data modules. The unit can be used to house 1 (type-400) module by only populating slot 1. This assembly is designed to be mounted to a wall, pole or other outdoor location where termination of DS0/DS1/HDSL services is required. It is ideal for use in applications such as customer residence, strip malls and other service handoff locations. The EM02-2xx series of products allow front access to the modules inside, limiting the number of moving parts and points of failure.

1.02 Whenever this document is revised, the reason for revision will be stated in this paragraph.

1.03 Features:
- 2-Slot mounting designed to house up to 2 (type-200) or 1 (type-400) T1/HDSL 2/4W or Data modules.
- Telco connections are protected via an access door that prevents access to non-telco personnel.
- Facility connections are accessed via the facility access panel
- The EM02-2xx is a die cast design that offers superior heat dissipation
- The EM02-2xx provides a (optional) heat shield that enhances the dissipation qualities of the product in extreme environments
- Weather Tight for outdoor applications
- GR-487, GR-63 & GR-49-Core Compliant; UL Listed

2. Applications

2.01 The EM02-2xx will house up to 2 (type-200) or 1 (type-400) T1/HDSL 2 or 4 Wire, or Data modules.

2.02 The EM02-2xx is designed to be installed in outdoor locations, such as the side of a customer residence, strip-mall or other locations. This assembly can be wall or pole mounted, and can be used both indoors and outdoors.

3. Installation

3.01 This mounting is designed to be installed by trained, authorized personnel only and must be installed in accordance with the local standards and practices for T1 (High Capacity 1.544 Mb/s), HDSL or Data Services. This assembly is designed to be installed using common hand tools.

Please refer to page 4, for detailed installation instructions for the EM02-2xx assembly.

4. Testing

4.01 Prior to testing the units installed in the assembly, verify that all of the wiring connections have been made. Also verify that the RJ48C/S switches for the modular jacks are properly configured for the desired circuit designations. The units are shipped from the factory in the RJ48C (default) position.

4.02 Once all of the proper connections have been made, the modules can be tested according to their individual manufacturers’ specifications.
Refer to the manufacturers practice for testing instructions.

5. Inspection and Warranty

Inspection

5.01 Please inspect this equipment thoroughly upon receipt. If the equipment is found to be damaged, please immediately report this damage to both the transportation company and to North American Communications Company (NAC).

Warranty

5.02 North American Communications Company warrants this product for the period specified by the terms governing the sale of the product.

5.03 Please do not attempt to field repair this equipment. Any modification or repair attempt will immediately cause the warranty to be null and void. This equipment should only be serviced by an authorized NAC representative. If the product is suspected of being faulty, replace it with an identical unit (optioned identically) and retest the circuit.

Repair and Return

5.04 In cases where the equipment is found to be defective, please contact NAC for a Return Authorization number. When returning, please provide a description of the problems or symptoms.

5.05 If the product is found to be defective for reasons other than misuse or abuse, a replacement product will be supplied. Replacement units are provided consistent with the urgency of the situation. If your need is immediate, please contact North American Communications or your local sales representative

Technical Assistance

5.06 Technical Assistance is available from North American Communications 24 hours a day, 7 days a week, and 365 days a year.
1-888-402-4NAC (4622)

6. Specifications

Power: The unit is designed to be span powered.
Operating Environment: Temperature, -40 to 149°F (-40 to 65°C); Humidity, 0 to 95%, no condensation
Dimensions: Height, 10 inches; Width, 10.5 inches; Depth, 7.5 inches.
Weight: Approximately 5 lbs

Available Models

<table>
<thead>
<tr>
<th>Model</th>
<th>Facility Connections</th>
<th>CPE Connections</th>
<th>Facility Side 5-pin Protection</th>
<th>CPE Side 5-Pin Protection</th>
<th>CLEI</th>
</tr>
</thead>
<tbody>
<tr>
<td>EM02-200</td>
<td>Screw Terms</td>
<td>Screw &amp; RJ48c/s</td>
<td>X</td>
<td></td>
<td>VAMLF10ERA</td>
</tr>
<tr>
<td>EM02-201</td>
<td>Screw Terms</td>
<td>Screw &amp; RJ48c/s</td>
<td></td>
<td></td>
<td>VAMLG10ERA</td>
</tr>
<tr>
<td>EM02-202</td>
<td>Wire Wrap Pins</td>
<td>RJ48c/s</td>
<td>X</td>
<td></td>
<td>VAMVB10FRA</td>
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<tr>
<td>EM02-203</td>
<td>Wire Wrap Pins</td>
<td>RJ48c/s</td>
<td></td>
<td></td>
<td>VAMVC10FRA</td>
</tr>
<tr>
<td>EM02-210</td>
<td>Screw Terms</td>
<td>Screw &amp; RJ48c/s</td>
<td>X</td>
<td>X</td>
<td>VAML610ERA</td>
</tr>
<tr>
<td>EM02-211</td>
<td>Wire Wrap Pins</td>
<td>RJ48c/s</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
**NOTE FOR HDSL2 Circuits:** When deploying HDSL2 using the EM02-200 or 202 only protectors PD2 (circuit 1) and PD4 (circuit 2) need to be populated with lightning protectors (PD1 & PD3 may be left empty). For the EM02-210 & 211 units, facility side slots PD2 and PD6 need to be populated with lightning protectors. All CPE protectors (PD3, PD4, PD7 & PD8) must be placed. (PD1 & PD5 may be left empty)

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**Figure 2.** EM02-210/211 Circuit Layout

**Figure 3.** EM02-200 & 202 Circuit Layout

**Figure 4.** EM02-2xx Circuit Diagram (Typical for both slots)
Wall Mounting Instructions using the enclosed “Hook” Bracket

1. To install the assembly on a wall using the enclosed “hook” bracket, position the hook bracket on the wall in the desired location and mark the mounting holes. Make sure that the hook positioned on the wall as shown in figure 4.

Figure 4. Hook Bracket Positioning

2. Now that the bracket is secured, you can hang the EM02 unit on the bracket as shown in figure 5 (below). Make sure that you also affix the EM02 to the wall or pole using the additional mounting location at the inside/bottom of the assembly. Use the appropriate screw or fastener to complete the installation.

Figure 5. Completed Hook Bracket installation

Facility-Side (FAC) Wiring Connections

FAC connections can be made to screw terminals or to the wire-wrap connections, depending on the option configuration the housing is equipped with. Circuit 1 facility connections can be made via TB1, while circuit 2 connections will be made via TB2. See table 1. for the facility side wiring connections.

Table 1. Facility-side Wiring Connections

<table>
<thead>
<tr>
<th>Facility Interface</th>
<th>Facility Designation</th>
<th>Pin Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>RCV in from FAC</td>
<td>7</td>
</tr>
<tr>
<td>R</td>
<td>RCV in from FAC</td>
<td>13</td>
</tr>
<tr>
<td>T1</td>
<td>XMT out to FAC</td>
<td>41</td>
</tr>
<tr>
<td>R1</td>
<td>XMT out to FAC</td>
<td>47</td>
</tr>
</tbody>
</table>

Typical for all Circuits (1 and 2)

CPE-Side Wiring Connections

Customer (CPE) connections can be made to the switch selectable RJ48C/S jacks and screw terminals or wire wrap pins, depending on the option configuration the housing is equipped with. Refer to table 2 for the CPE (Customer side) wiring connections.

Table 2. CPE-side Wiring Connections

<table>
<thead>
<tr>
<th>Customer (CPE) Interface</th>
<th>CPE Designation</th>
<th>Pin No</th>
<th>RJ48C</th>
<th>RJ48S</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>RCV out to CPE (Tip 1)</td>
<td>5</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>R1</td>
<td>RCV out to CPE (Ring 1)</td>
<td>15</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>T</td>
<td>XMT in from CPE (Tip)</td>
<td>55</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>R</td>
<td>XMT in from CPE (Ring)</td>
<td>49</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

CAUTION: The ground lug terminal must be directly (and separately) connected to an earth ground. This must be done to properly ground the assembly as well as all Network Interface Device front panels. The ground lug will accept a #6 to #14 gauge stranded or solid ground wire.

Local Powering

When locally powering the unit via terminal block 5 (TB5), the black power supply wire will be connected to the plus (+48vdc) terminal and the red wire will be connected to the negative or minus (-48vdc) terminal.

The green (chassis ground or grnd) wire from the power supply should be connected to the bus bar as shown below in figure 8. The chasse ground (grnd) feed to the EM02 should be connected to the ground lug provided. The power supply used in Figure 8 is the NAC Model PS01. Please be sure to follow your local grounding requirements.
The ground lug (shown in figure 8 below) can be rotated to any angle (360°) to facilitate the termination of solid ground wires.

Figure 8. Local Powering Configuration

The following warning information is required by the ETL Safety Testing Laboratory:

A. Never install telephone wiring during a lightning storm.

B. Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.

C. Use caution when installing or modifying telephone lines.

D. Never touch un-insulated telephone wires or terminals unless disconnected at the network interface.