

DS3 Network Interface Unit NIU3 Standalone Housing Installation and Maintenance Practice

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1. GENERAL

This practice is used in association with the NIU3 practice, P/N 61212075Lx-5. Refer to *Specifications* section for additional information.

The NIU3 standalone housing installs at the customer premises at a designated location convenient to the customer. The housing can be oriented in any position allowing clearance to fully open the cover.

Revision History

This is the first issue of this document. Future changes to this document will be summarized in this paragraph.

Features

The standalone housing provides the following features and functions:

- Pass through relays for signal reliability during power loss or card removal.
- Sturdy metal construction.
- Durable powder-coated enamel finish.
- All threaded fasteners.

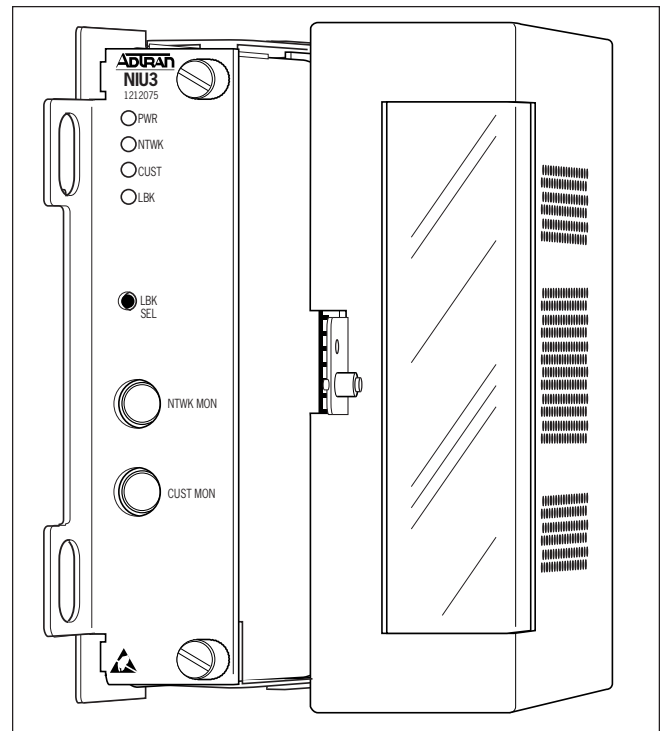


Figure 1. Standalone Housing w/NIU3

- Card guides for easy card insertion.
- Transparent viewing panel.
- Hasp for locking the cover.
- Wire tie-down extrusion.
- Easy to read label identification.
- Portals for power and ground wires.

Description

The standalone housing is designed to mount to a plywood backboard. The body has four mounting screw holes on raised extrusions, which provide clearance from the backboard. The housing interior holds a host circuit board designed to accept the NIU3 circuit card. Card guides direct the NIU3 for correct insertion and also secure the unit from vertical movement. When properly inserted, the NIU3 thumbscrews on the front panel align and fasten to threaded holes on the standalone body, providing a secure assembly.

The rear panel has portals for power and ground wires, plus four BNC connectors:

- two for network transmit/receive
- two for customer transmit/receive

All front and rear panel items are clearly labeled. A wire-tie anchor point is also on the rear panel. See **Figure 2** for rear panel arrangement.

2. INSTALLATION



After unpacking the unit inspect it for damage. If damage is noted, file a claim with the carrier, then contact ADTRAN. Refer to *Warranty and Customer Service*.

Location

The NIU3 is designed for installation between the ADM and customer equipment. The NIU3 can pass both network and customer signals up to 900 feet. However, if either distance exceeds 450 feet, the respective front panel monitoring signal begins to degrade. Also, during NIU3 bypass operations, if total transmission distance exceeds 900 feet, signal quality may degrade. See **Figure 3** for NIU3 network arrangement and maximum recommended signal distance.

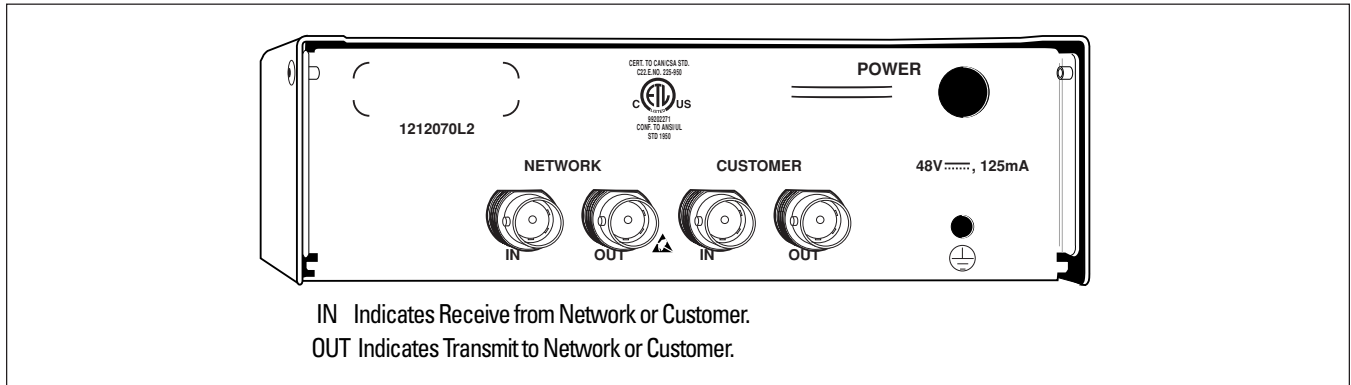


Figure 2. NIU3 Standalone Rear Panel

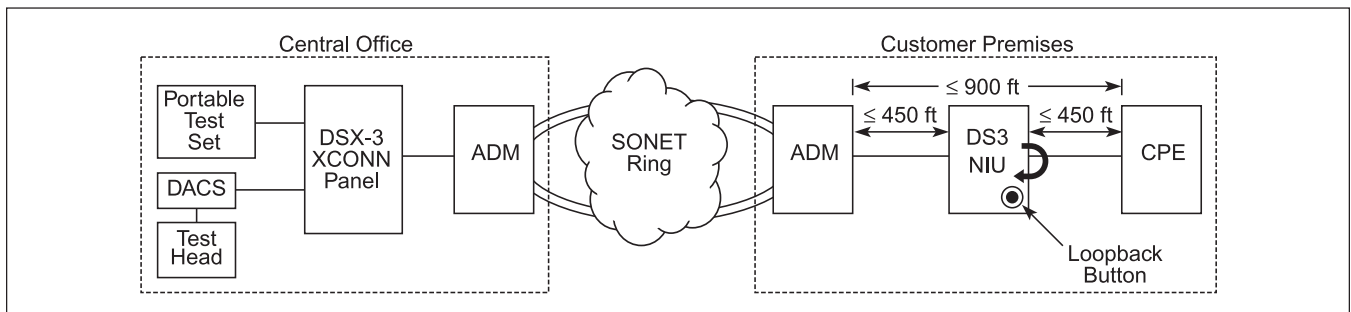


Figure 3. NIU3 Circuit Arrangement

Mounting

Install the unit per NEC NFPA 70 requirements. The NIU3 standalone housing can mount at any convenient location adjacent to the customer:

- Position the housing at the designated location.
- Ensuring the housing is plumb, mark the four mounting holes for pilot hole location.
- Using an appropriate sized bit, drill the four pilot holes.
- Align the housing to the pilot holes and fasten to the backboard with supplied screws.

Connections

The NIU3 operates on local -48 VDC. The standalone housing has a power wire portal on the rear panel for termination at TB1, which has spade lug terminals for 48 V(-), 48 V(+)/GND, and Frame Ground (see **Figure 4**).

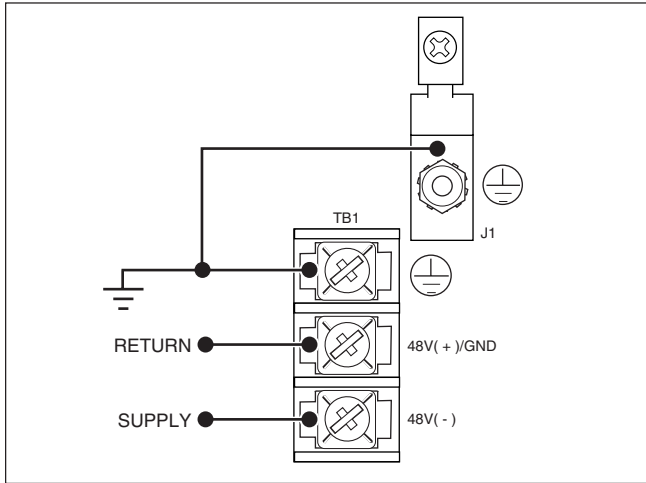


Figure 4. Local DC Power Connection

An optional power source is from a standard 120 VAC wall outlet via a separately purchased transformer with 48 VDC @ 200 mA output. In this case the (red) power wire is connected to the 48 V(+)/GND terminal and the (black) return wire to the 48 V(-) terminal. The green wire connects to the Frame Ground terminal (**Figure 5**). See requirements in *Compliance* subsection.

CAUTION

Terminate grounds to an approved ground location. Check metal to metal contact on all ground connections, ensure ground circuit continuity.

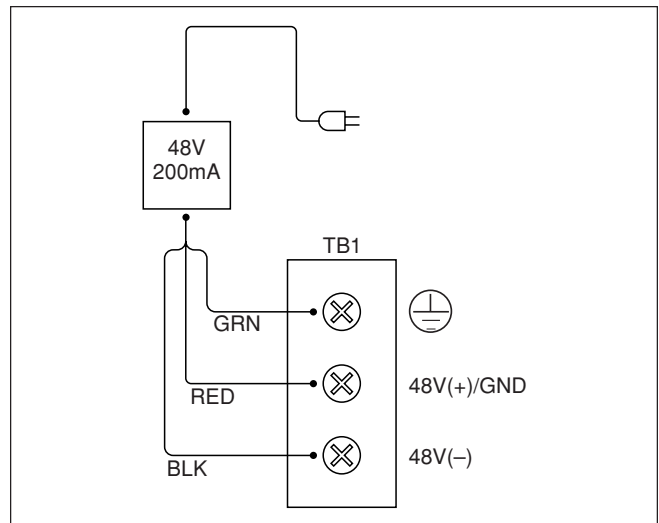


Figure 5. AC/DC Transformer Power

Optional frame ground is provided by a ground lug (J1) on the host circuit board. J1 is electrically connected to TB1. A ground wire portal on the rear panel of the housing provides access for this ground wire. J1 is a screw compression terminal requiring a solid copper wire.

CAUTION

Per GR-1089-CORE, October 2002, *Section 9*, this system is designed and intended for installation in a DC-C (common) bonding and grounding system only. It is not intended or designed for installation in a DC-I (isolated) bonding and grounding system.

Wiring

Wiring consists of two elements: power and data. The host circuit board power terminal strip (TB1) is designed for spade lug terminations. Use suitably sized copper conductors only.

Power

WARNING

Ensure power is off before making wiring connections.

- From a local power source, feed the wire through the Power portal on the housing rear panel.
- Make wiring connections to TB1 as shown in Figure 4 or 5 as applicable.
- Dress and lace wire runs as necessary.

Data

The standalone housing has four BNC connectors: two (IN/OUT) for network receive/transmit, and two (IN/OUT) for customer receive/transmit.

- Connect the appropriate cables to the BNCs.
- If not already accomplished, connect the opposite ends to their designated terminations.
- Dress and lace the wire runs as necessary.

Fuse

The –48 VDC is fused on the NIU3 card.

Options

Aside from power source and ground termination, there are no options associated with the NIU3 standalone housing.

3. TURN-UP

When an NIU3 is inserted into a standalone housing with power on the host circuit board, the PWR LED turns ON red while the NIU3 performs a self-test during which the remaining LEDs go through an ON/OFF sequence. If the test passes the PWR LED turns ON green indicating the NIU3 is online. If the test fails the LED remains red and the bypass relays maintain data flow around the NIU3.

4. OPERATION

The NIU3 standalone host circuit board exchanges data to and from the network loop and customer loop via the BNC connectors. During operation the NIU3 is transparent to data flow. If the NIU3 fails or is removed from the circuit, relays on the standalone host circuit board provide pass through transmission so data flow can resume.

During troubleshooting operation, the NIU3 will loopback test data to the originating station. NIU3 troubleshooting tests are intrusive to data transmission.

LED Indication

There are no LEDs on the standalone housing. However, NIU3 LEDs provide indication for NIU3 and standalone housing configuration and status.

5. MAINTENANCE

The standalone housing does not require maintenance for normal operation.

6. SPECIFICATIONS

Refer to **Table 1** for Configuration Codes and **Table 2** for standalone unit specifications and part numbers.

Compliance

Use one of the following requirements for powering the unit locally:

- a. Connect to a grounded –48 VDC source, electrically isolated from the AC source. Provide branch circuit overcurrent protection with a fuse or circuit breaker, minimum 48 VDC, maximum 15 A. Provide an easily accessed approved and rated disconnect device in the field wiring.
- b. Connect to an approved Class 2 Type (LPS) power supply rated 48 VDC, maximum 240 VA.

Standards

NEBS: Level 3
ANSI: T1.404
UL: 1950

Table 1. Configuration Codes

Code	Input	Output
Power Code (PC)	F	C
Telecommunication Code (TC)	–	–
Installation Code (IC)	E	–

7. WARRANTY AND CUSTOMER SERVICE

ADTRAN will replace or repair this product within the warranty period if it does not meet its published specifications or fails while in service. Warranty information can be found at www.adtran.com/warranty.

U.S. and Canada customers can also receive a copy of the warranty via ADTRAN's toll-free faxback server at 877-457-5007.

- Request Document 414 for the *U.S. and Canada Carrier Networks Equipment Warranty*.
- Request Document 901 for the *U.S. and Canada Enterprise Networks Equipment Warranty*.

Refer to the following subsections for sales, support, CAPS requests, or further information.

ADTRAN Sales

Pricing/Availability:
800-827-0807

ADTRAN Technical Support

Pre-Sales Applications/Post-Sales Technical Assistance:
800-726-8663

Standard hours: Monday - Friday, 7 a.m. - 7 p.m. CST
Emergency hours: 7 days/week, 24 hours/day

ADTRAN Repair/CAPS

Return for Repair/Upgrade:
(256) 963-8722

Repair and Return Address

Contact Customer and Product Service (CAPS) prior to returning equipment to ADTRAN.

ADTRAN, Inc.
CAPS Department
901 Explorer Boulevard
Huntsville, Alabama 35806-2807

Table 2. Standalone Specifications

Environmental	
Operating Temperature	-40°C to 70°C (-40°F to 158°F)
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Max Humidity	Per GR 63
Physical	
Dimensions	2 inches high x 11 inches deep x 6 inches wide
Weight	NIU3 circuit board: 8 Ounces Standalone housing assembly: 2.0 pounds
Power	
Volts	-48 VDC nominal
Max input current	125 mA
Compliance	
NEBS	Level 3
UL	1950
ANSI	T1.404
Part Numbers	
Standalone Housing	1212070L1, CLEI: NCM57WVD _ _
NIU3	1212075L1, CLEI: NCD3EEDA _ _
AC/DC Transformer	3360DSK48V03 (separately purchased)

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