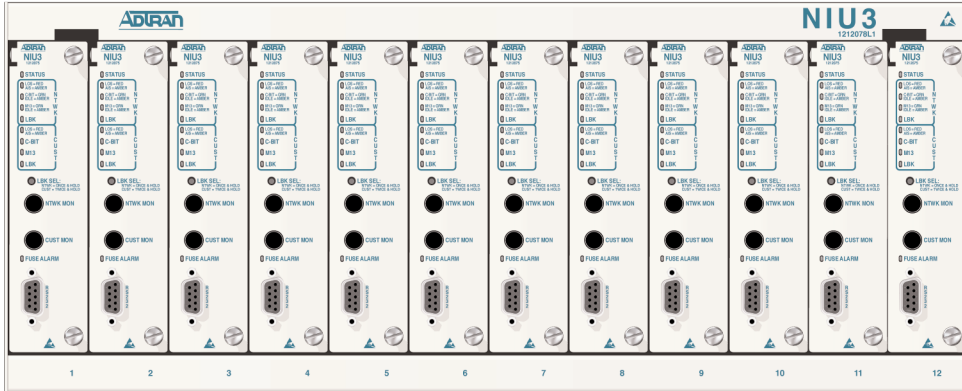


NIU3 12-SLOT SHELF

CLEI: NCM58Z0D_ _



GENERAL

This job aid is used in association with the NIU3 circuit card job aids, P/N 61212075LX-22. The NIU3 12-Slot Shelf is an all-metal construction unit that has slots for 12 NIU3 circuit cards. Card guides direct the card to the backplane edge connector and when properly inserted, thumbscrews on the NIU3 front panel align and fasten to threaded holes recessed on the shelf interior. A removable transparent front panel with locking hasp provides security. The backplane circuitry is protected by a metal cover that has openings for BNC data jacks, power terminal connections, and alarm pins. Two cable management bars and wire tie-down anchor points complete the assembly. All connections are clearly labeled. Power and alarm terminals have removable security covers.

INSTALLATION AND LOCATION

After unpacking the unit, inspect it for damage. If damage is noted, file a claim with the carrier, then notify ADTRAN. See *Warranty*.

The NIU3 12-Slot Shelf installs at any location convenient to the customer as a demarcation and loopback point for DS3 circuits.

NOTE: 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 *Circuit Diagram on reverse*.

Mounting

NOTE: Install the unit per NEC NFPA 70 requirements. See *Compliance section*.

The NIU3 12-Slot Shelf can be bay mounted at any convenient location. Reversible mounting flanges adjust to desired position in the 19-inch rack (23-inch mounting flanges also included):

1. Determine desired shelf extension from the bay.
2. Position the mounting flanges as necessary using the appropriate flanges for a 19-inch or 23-inch bay. Install using supplied counter-sink screws.
3. Install cable management bars to the rear cover of the shelf using supplied pan-head screws.
4. Mount the shelf to the bay accordingly.

Wiring

Wiring consists of three elements: data, power, and alarms.

NOTE: Use suitably sized copper conductors only.

Data

Externally, the shelf backplane has four BNC connectors for each of the twelve NIU3 slots: two upper (IN/OUT) for network receive/transmit, and two lower (IN/OUT) for customer receive/transmit. Cable management bars provide for tie-wrapping cables.

1. Connect the cables to the BNCs on the backplane for those shelf slots that will be populated.
2. If not already accomplished, connect the opposite ends to their designated terminations.
3. Dress and lace the wire runs to the cable management bars and bay frames as necessary.

Power

Fully populated, the NIU3 shelf operates on local -48 VDC @ 1.5 amps maximum. The shelf backplane has spade lug terminal connections (TB1) for both an "A-side" and "B-side" independent DC source, plus a common frame ground. A diode arrangement adds reliability by allowing both DC supplies to load-share with one side picking up the entire load should the other side fail. See NOTE in *Compliance* section for requirements.

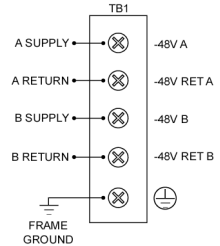
WARNING: Ensure power is off before making wiring connections.

1. Connect the -48 VDC supply and return wires to the A-side terminals.
2. If redundant power is intended, connect an independent power source to the B-side terminals.

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

3. Connect the common frame ground terminal to an approved ground location.

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.



Alarms

A 3-post wire-wrap terminal (P1) on the shelf backplane selects either a normally closed (COM/NC), or a normally open (COM/NO), alarm relay. The alarm relay output responds to the card malfunction status on individual NIU3 cards.

1. Determine if the desired alarm output is a NO or NC response.
2. Make wire-wrap connections accordingly.
3. If not already accomplished, connect alarm output to designated terminations.

After wiring connections are made, replace security covers.

OPTIONS

Aside from connecting redundant power, and alarm NO/NC selection, there are no options associated with the shelf.

TURN-UP

When an NIU3 is inserted into a shelf with power on the backplane, the PWR or STATUS LED turns ON red while the NIU3 performs a self-test. If the test passes, the PWR or STATUS LED turns ON green indicating the NIU3 is online and the other LEDs go through an ON/OFF sequence. If the test fails, the LED remains red and the bypass relays (patent pending) on the shelf maintain data flow around the NIU3.

OPERATION

The NIU3 12-Slot Shelf 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, the relays on the shelf backplane provide passthrough transmission so data flow is maintained.

In the event of circuit trouble, test equipment at the central office can monitor the loop. When a loopback is initiated, the transmit/receive paths can be tested to the customer interface. NIU3 troubleshooting tests are intrusive to data transmission.

LED Indication

There are no LEDs on the 12-slot shelf. However, NIU3 LEDs provide information for NIU3 and shelf configuration and status.

COMPLIANCE

NEBS	Level 3
ANSI	T1.404
UL	1950

UL 1950 Configuration Codes

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

NOTE: Adhere to the following Compliance requirements to power the unit locally:

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

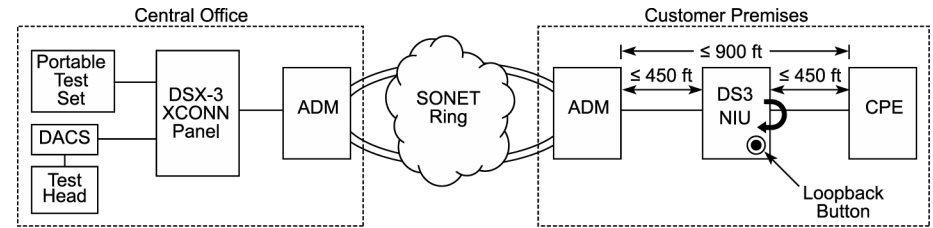
After installation, ensure stability of the bay is not upset.

For those slots not populated with an NIU3 circuit card, blank covers (P/N 1212076L1) must be installed.

MAINTENANCE

The NIU3 12-slot shelf does not require maintenance for normal operation.

CIRCUIT DIAGRAM

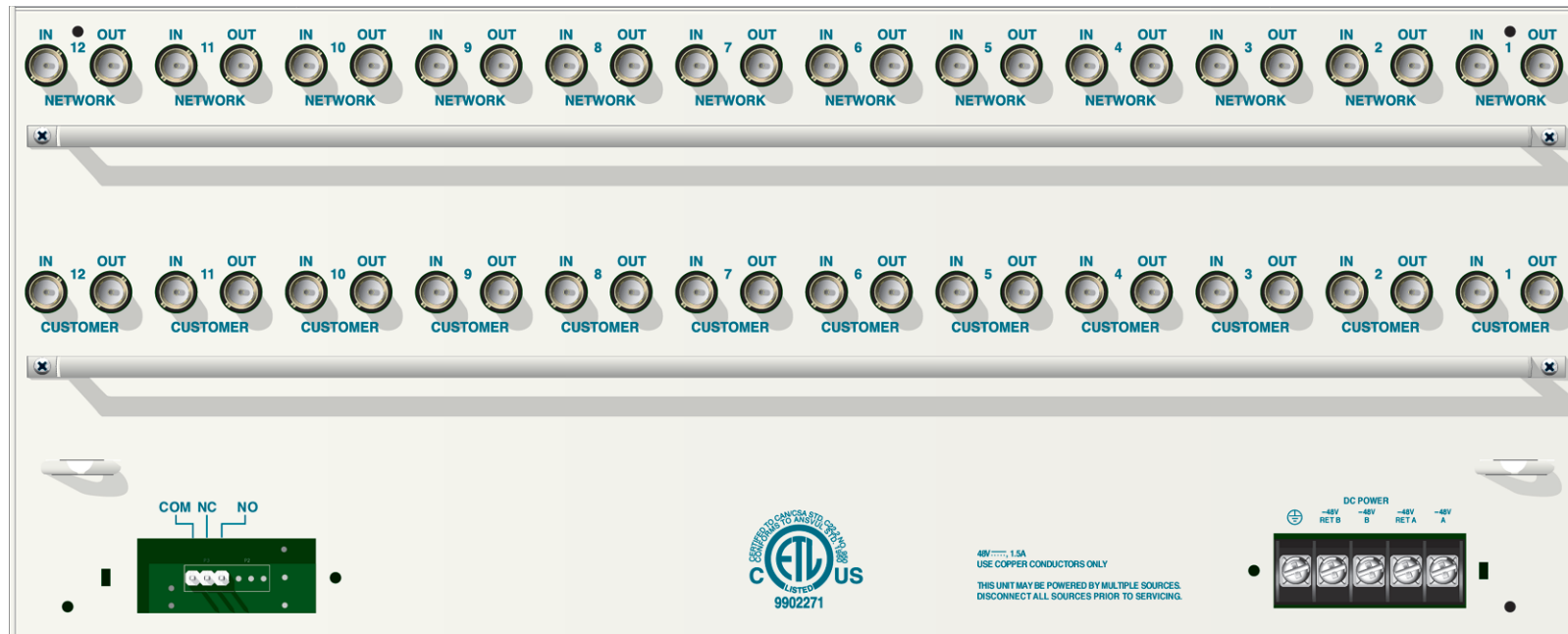


PART NUMBERS AND CLEI CODES

Description	Part Number	CLEI Code
12-slot, 19-inch shelf:	1212078L2	NCM58Z0D__
3-Slot, 19-inch shelf:	1212073L2	NCM524ZD__
NIU3:	1212075L2	NCD3EG0A__
Blank Cover:	1212076L1	

WARRANTY

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 customer Faxback: 877-457-5007, Document 414.



NOTE: Power and Alarm security covers removed for clarity.