ADTRAN®

MX2820
M13 MUX

P/N 1186002L5
CLEI: M3C3WG0ATA

ADTRAN
M13 MUX
1186002

● ACT
● ALM
● STAT ⌐ DS3
● TEST ⌐
● STAT ⌐ DS1
● TEST ⌐

CAUTION!
SUBJECT TO ELECTROSTATIC DAMAGE
OR DECREASE IN RELIABILITY.
HANDLING PRECAUTIONS REQUIRED.
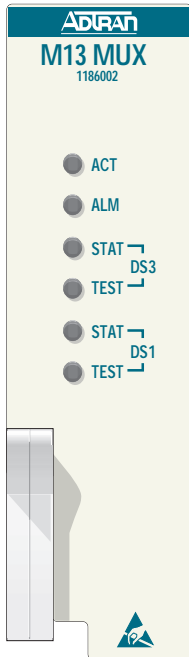
LED STATUS FOR ACTIVE MUX

ACT	●	Green	Normal (All OK)
	●/●	Green/Amber (Alternating)	Normal and console open
	●	Red	Self-test failed
	●	Amber	Software update in progress
	●/●	Red/Amber (Alternating)	Self-test failed and console open
	✳	Red (Flashing)	Module has failed
ALM	●	Green	No critical, major, or minor alarms
	●	Red	Major or minor alarm in progress
	✳	Red (Flashing)	Critical alarm in progress
DS3 STAT	●	Green	Normal (DS3 OK)
	●	Red	AIS, OOF, RAI, Idle alarms
	✳	Red (Flashing)	DS3 LOS or DS3 Failure (critical)
	✳	Red (Flashing once per event)	Single/Burst DS3 code violations
	●/●	Red/Green (Alternating)	DS3 XCV threshold exceeded
DS3 TEST	○	Off	No DS3 tests in progress
	●	Amber	In test (locally originated)
	✳	Amber (Flashing)	In test (remotely originated)
DS1 STAT	○	Off	All DS1s are disabled
	●	Green	Enabled DS1s normal (All OK)
	●	Red	Non-critical DS1 alarm (CAIS, LAIS)
	✳	Red (Flashing)	LOS on an enabled line (critical DS1 alarm; non-critical system alarm)
	✳	Red (Flashing once per event)	Single/Burst RX DS1 code violation
	●/●	Red/Green (Alternating)	DS1 XCV threshold exceeded
DS1 TEST	○	Off	No DS1 tests in progress
	●	Amber	In test (locally originated)
	✳	Amber (Flashing)	In test (remotely originated)

LED STATUS FOR STANDBY MUX

ACT	✳	Green (Flashing)	Normal (All OK)
	●	Amber	Software update in progress
	✳	Red	Failure
ALM	○	Off	Permanent state during standby
DS3 STAT	○	Off	Normal (DS3 OK)
	✳	Red (Flashing)	In test (remotely originated)
DS3 TEST	○	Off	Permanent state during standby
DS1 STAT	○	Off	Normal (DS1s OK)
	✳	Red (Flashing)	DS1 Failure
DS1 TEST	○	Off	Permanent state during standby

DESCRIPTION

The MX2820 M13 MUX is a plug-in unit for the MX2820 chassis that provides an M13 multiplexer function to the MX2820 system. Two MX2820 M13 MUX cards are used together to provide a redundant M13 multiplexer circuit. The MX2820 M13 MUX:

♦ provides 1:1 redundancy
♦ meets the requirements for NEBS Level 3.

INSTALLATION AND TURNUP

After unpacking the unit, inspect it for damage. If damage is found, file a claim with the carrier and then contact ADTRAN Customer Service. Refer to the *Warranty Statement* on this Job Aid.

This module occupies a MUX slot in the MX2820 chassis. To install the M13 MUX in the chassis, perform the following steps:

1. Pull the ejector tab into the down position and gently but firmly push the MUX into the selected MUX slot. Simultaneous thumb pressure at the top and at the bottom of the unit will ensure a good seat of the MUX into the backplane connector.
2. Push the ejector tab up and closed against the front panel.
   Upon installation, the MUX will begin a self-test. This is followed with the LEDs reflecting the true state of the hardware.

OPERATIONAL SPECIFICATIONS

♦ Operates from A or B –42 VDC to –56 VDC input voltage power feeds.
♦ Operates over extended temperature range of –40ºC to +50ºC without fans or –40ºC to +65ºC with fans.
♦ Storage –40ºC to +85ºC. Relative humidity to 95 percent, noncondensing.

COMPLIANCE

♦ The MX2820 M13 MUX complies with UL 60950, NEBS Level 3, and GR-1089-CORE.
♦ The MX2820 M13 MUX is intended for installation in restricted access areas only.
♦ The MX2820 M13 MUX is intended for installation in a Type "B" or "E" enclosure.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by ADTRAN could void the user's authority to operate this equipment.

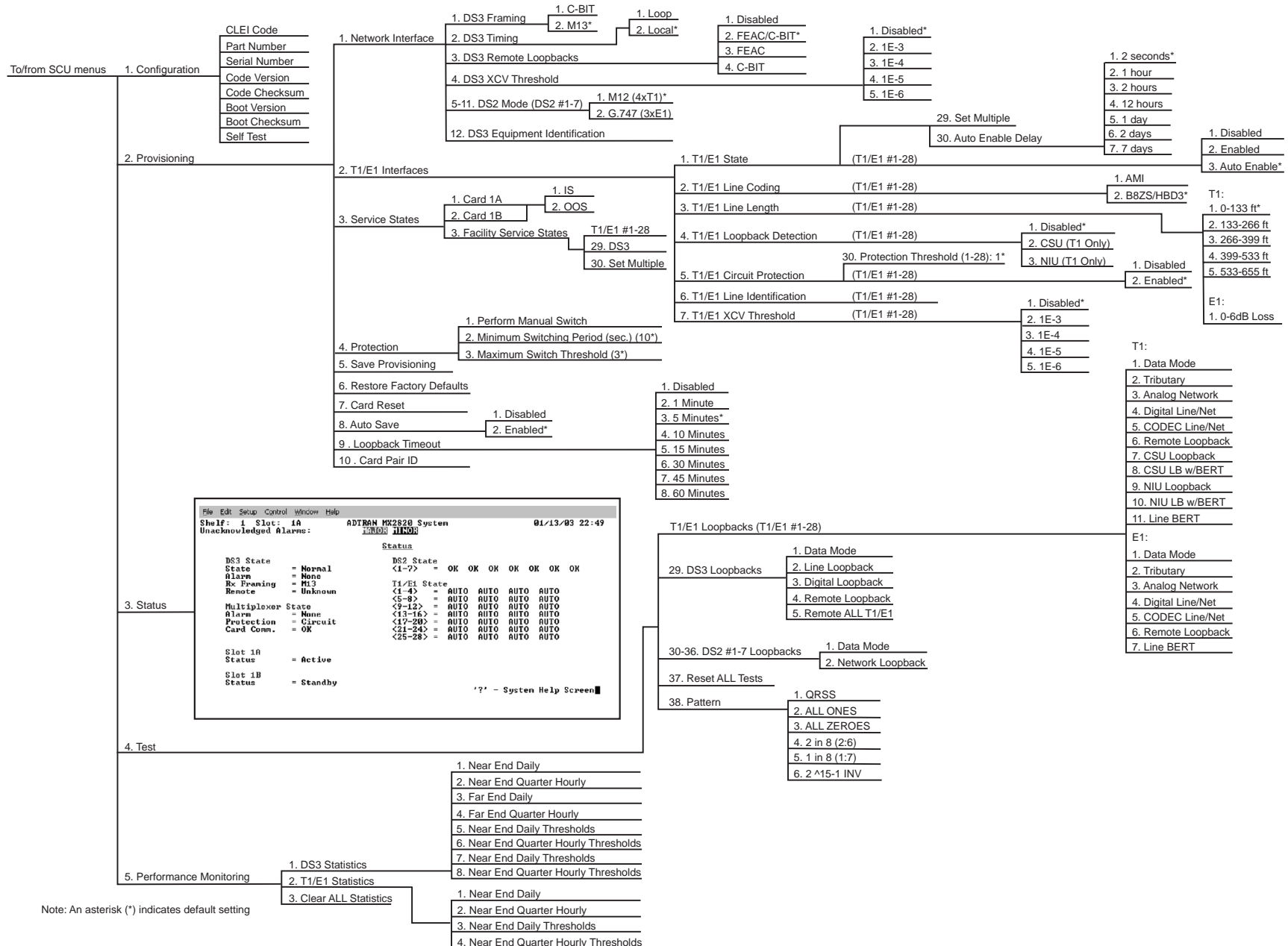| Code	Input	Output
Power Code	C	C
Telecommunication Code (TC)	–	–
Installation Code (IC)	A	–

PROVISIONING

All provisioning of the MX2820 M13 MUX will be handled through the SCU. The menu tree on the reverse of this Job Aid provides the options and default settings for the MX2820 M13 MUX. NOTE: When provisioning the L5 MUX, use the menu tree on this Job Aid, rather than the manual, as there are some code differences in the MX2820 Manual.

MX2820 –48 VDC M13 MUX

PRICING AND AVAILABILITY 800.827.0807
TECH SUPPORT 800.726.8663
RETURN FOR REPAIR 256.963.8722
www.adtran.com
61186002L5-22A

To/from SCU menus

1. Configuration

- CLEI Code
- Part Number
- Serial Number
- Code Version
- Code Checksum
- Boot Version
- Boot Checksum
- Self Test

2. Provisioning

1. Network Interface
   - 1. DS3 Framing
     - 1. C-BIT
     - 2. M13*
       - 1. Loop
       - 2. Local*
   - 2. DS3 Timing
   - 3. DS3 Remote Loopbacks
     - 1. Disabled
     - 2. FEAC/C-BIT*
     - 3. FEAC
     - 4. C-BIT
   - 4. DS3 XCV Threshold
     - 1. Disabled*
     - 2. 1E-3
     - 3. 1E-4
     - 4. 1E-5
     - 5. 1E-6
   - 5-11. DS2 Mode (DS2 #1-7)
     - 1. M12 (4xT1)*
     - 2. G.747 (3xE1)
   - 12. DS3 Equipment Identification

2. T1/E1 Interfaces
   - 1. T1/E1 State (T1/E1 #1-28)
     - 29. Set Multiple
     - 30. Auto Enable Delay
       - 1. 2 seconds*
       - 2. 1 hour
       - 3. 2 hours
       - 4. 12 hours
       - 5. 1 day
       - 6. 2 days
       - 7. 7 days
         - 1. Disabled
         - 2. Enabled
         - 3. Auto Enable*
   - 2. T1/E1 Line Coding (T1/E1 #1-28)
     - 1. AMI
     - 2. B8ZS/HBD3*
   - 3. T1/E1 Line Length (T1/E1 #1-28)
     - T1:
       - 1. 0-133 ft*
       - 2. 133-266 ft
       - 3. 266-399 ft
       - 4. 399-533 ft
       - 5. 533-655 ft
     - E1:
       - 1. 0-6dB Loss
   - 4. T1/E1 Loopback Detection (T1/E1 #1-28)
     - 1. Disabled*
     - 2. CSU (T1 Only)
     - 3. NIU (T1 Only)
   - 5. T1/E1 Circuit Protection (T1/E1 #1-28)
     - 30. Protection Threshold (1-28): 1*
       - 1. Disabled
       - 2. Enabled*
   - 6. T1/E1 Line Identification (T1/E1 #1-28)
   - 7. T1/E1 XCV Threshold (T1/E1 #1-28)
     - 1. Disabled*
     - 2. 1E-3
     - 3. 1E-4
     - 4. 1E-5
     - 5. 1E-6

3. Service States
   - 1. Card 1A
     - 1. IS
     - 2. OOS
   - 2. Card 1B
   - 3. Facility Service States
     - T1/E1 #1-28
     - 29. DS3
     - 30. Set Multiple

4. Protection
   - 1. Perform Manual Switch
   - 2. Minimum Switching Period (sec.) (10*)
   - 3. Maximum Switch Threshold (3*)

5. Save Provisioning

6. Restore Factory Defaults

7. Card Reset

8. Auto Save
   - 1. Disabled
   - 2. Enabled*

9. Loopback Timeout
   - 1. Disabled
   - 2. 1 Minute
   - 3. 5 Minutes*
   - 4. 10 Minutes
   - 5. 15 Minutes
   - 6. 30 Minutes
   - 7. 45 Minutes
   - 8. 60 Minutes

10. Card Pair ID

3. Status


```
File  Edit  Setup  Control  Window  Help

Shelf:  1  Slot:  1A       ADTRAN MX2820 System          01/13/03 22:49
Unacknowledged Alarms:     MAJOR MINOR

                                    Status
      DS3 State                     DS2 State
      State       = Normal          <1-7>   =  OK  OK  OK  OK  OK  OK  OK
      Alarm       = None
      Rx Framing  = M13             T1/E1 State
      Remote      = Unknown         <1-4>   =  AUTO AUTO AUTO AUTO
                                    <5-8>   =  AUTO AUTO AUTO AUTO
      Multiplexer State             <9-12>  =  AUTO AUTO AUTO AUTO
      Alarm       = None            <13-16> =  AUTO AUTO AUTO AUTO
      Protection  = Circuit         <17-20> =  AUTO AUTO AUTO AUTO
      Card Comm.  = OK              <21-24> =  AUTO AUTO AUTO AUTO
                                    <25-28> =  AUTO AUTO AUTO AUTO

      Slot 1A
      Status      = Active

      Slot 1B
      Status      = Standby

                                           '?' - System Help Screen
```

4. Test

- T1/E1 Loopbacks (T1/E1 #1-28)
  - 1. Data Mode
    - T1:
      - 1. Data Mode
      - 2. Tributary
      - 3. Analog Network
      - 4. Digital Line/Net
      - 5. CODEC Line/Net
      - 6. Remote Loopback
      - 7. CSU Loopback
      - 8. CSU LB w/BERT
      - 9. NIU Loopback
      - 10. NIU LB w/BERT
      - 11. Line BERT
    - E1:
      - 1. Data Mode
      - 2. Tributary
      - 3. Analog Network
      - 4. Digital Line/Net
      - 5. CODEC Line/Net
      - 6. Remote Loopback
      - 7. Line BERT
  - 2. Line Loopback
  - 3. Digital Loopback
  - 4. Remote Loopback
  - 5. Remote ALL T1/E1

- 29. DS3 Loopbacks
  - 1. Data Mode
  - 2. Line Loopback
  - 3. Digital Loopback
  - 4. Remote Loopback
  - 5. Remote ALL T1/E1

- 30-36. DS2 #1-7 Loopbacks
  - 1. Data Mode
  - 2. Network Loopback

- 37. Reset ALL Tests

- 38. Pattern
  - 1. QRSS
  - 2. ALL ONES
  - 3. ALL ZEROES
  - 4. 2 in 8 (2:6)
  - 5. 1 in 8 (1:7)
  - 6. 2 ^15-1 INV

5. Performance Monitoring

- 1. DS3 Statistics
  - 1. Near End Daily
  - 2. Near End Quarter Hourly
  - 3. Far End Daily
  - 4. Far End Quarter Hourly
  - 5. Near End Daily Thresholds
  - 6. Near End Quarter Hourly Thresholds
  - 7. Near End Daily Thresholds
  - 8. Near End Quarter Hourly Thresholds
- 2. T1/E1 Statistics
  - 1. Near End Daily
  - 2. Near End Quarter Hourly
  - 3. Near End Daily Thresholds
  - 4. Near End Quarter Hourly Thresholds
- 3. Clear ALL Statistics

Note: An asterisk (*) indicates default setting