auma®

Triple Play Matic DeviceNet with CDN455

DeviceNet CONFORMANCE TESTED

Operation Instructions

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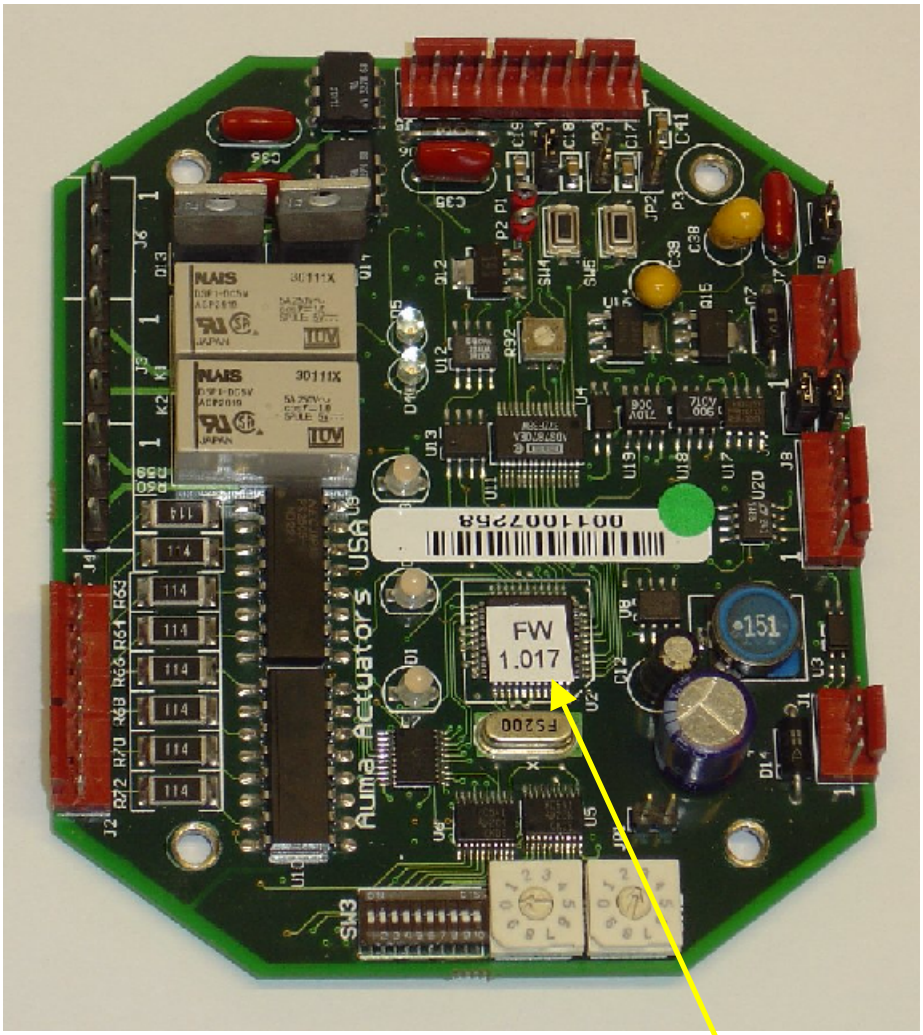
Scope of these instructions:

These instructions cover the Triple Play Matic DeviceNet with the CDN455 control board covering firmware versions 1.011 thru 1.017. The firmware version can be determined by the sticker on the CDN455 board. See figure below.



CDN455 Software Version Sticker

Legend: FW 1 . 017

Firmware:

Major Revision:

Minor Revision:

Table of Contents

1 Safety Instructions

1.1 Range of application

AUMA actuators are designed for the operation of industrial valves, e.g. globe valves, gate valves, butterfly valves and ball valves.

For other applications please consult us. AUMA is not liable for any possible damage resulting from use in other than the designated applications. Such risk lies entirely with the user.

Observance of these operation instructions is considered as part of the controls designated use.

1.2 Short description

AUMA actuators have a modular design. Motor and gearing are mounted in a common housing.

The actuators are driven by an electric motor and controlled with the electronic controls TriplePlay Matic. The electronic controls are included in the scope of delivery.

1.3 Commissioning (electrical connection)

During electrical operation certain parts inevitably carry lethal voltages. Work on the electrical system or equipment must only be carried out by a skilled electrician and in accordance with the applicable electrical engineering rules.

1.4 Maintenance

The maintenance instructions must be observed, otherwise a safe operation of the actuator is no longer guaranteed.

1.5 Warnings and notes

Non-observance of the warnings and notes may lead to serious injuries or damage. Qualified personnel must be thoroughly familiar with all warnings and notes in these operation instructions.

Correct transport, proper storage, mounting and installation, as well as careful commissioning are essential to ensure a trouble-free and safe operation.

The following references draw special attention to safety-relevant procedures in these operation instructions. Each is marked by the appropriate pictograph.

This pictograph means: Note!

“Note” marks activities or procedures, that have major, influence on the correct operation. Non-observance of these notes may lead to consequential damage.

This pictograph means: Electrostatically endangered parts!

If this pictograph is attached to a printed circuit board, it contains parts, which may be damaged or destroyed by electrostatic discharges. If the boards need to be touched during setting, measurement or for exchange, it must be assured that immediately before a discharge through contact with an earthed metallic surface (e.g. the housing) has taken place.

This pictograph means: Warning!

“Warning marks activities or procedures that, if not carried out correctly, can affect the safety of persons or material.

2 Transport and storage

- Transport to place of installation in sturdy packing.
- Do not attach ropes or hooks to the hand wheel for the purpose of lifting by hoist.
- Store in well-ventilated, dry room.
- Protect against floor dampness by storage on a shelf or on a wooden pallet.
- Cover to protect against dust and dirt.
- Apply suitable corrosion protection agent to bright surfaces.

3 General Information

The CDN455 TriplePlay Board is furnished in the AUMA Matic motor control housing for controlling electric motor driven actuators used on valves, dampers and other devices. The board serves as the actuator's interface with the plant control system.

The Triple Play Matic can be configured in the following control modes:

- DeviceNet digital control mode
- Modbus digital control mode
- Analog control mode (4-20mA) with or without bus monitoring.

This manual covers the operation of DeviceNet digital control and Analog control mode with or without bus monitoring.

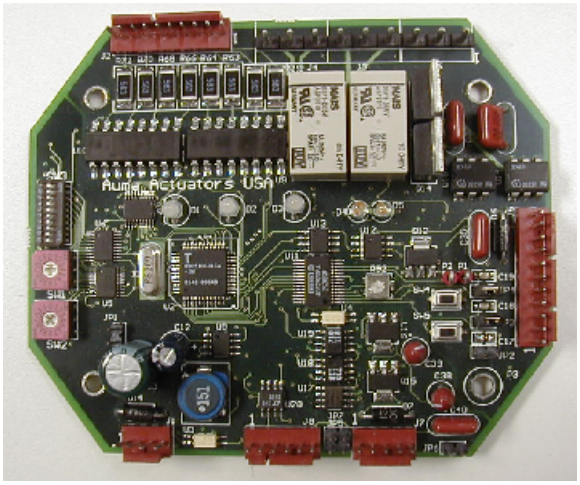


Figure 3-1
CDN455 Control Board

4 Electrical Commissioning

4.1 General DeviceNet Information

DeviceNet is an open modern communication system that is easy to install and configure. Through the use of EDS (electronic data sheets) files, system configuration is very quick and easy. The EDS file defines the communication requirements and I/O properties of the actuator. The EDS file may be found on the AUMA-USA Website: www.auma-usa.com .

During system configuration, each node (actuator) on the network is automatically matched to the appropriate EDS file by a DeviceNet configurator such as RSNetworks for DeviceNet. This allows the I/O information from each actuator to be mapped into the DeviceNet scanner with minimal operator knowledge of the equipment. This process greatly simplifies system configuration allowing an entire network to be configured in minutes. DeviceNet is also supported by most major equipment manufacturers and governed by the ODVA http://www.odva.org/

DeviceNet uses a trunk/drop line topology. As a basic guideline the following table lists the allowable cable lengths and data rates allowed. For detailed information on designing a DeviceNet cable system the ODVA http://www.odva.org/ has an excellent download titled “Planning and Installation Manual”.

Communication rate	Maximum distance (thick cable)	Maximum distance (thin cable)	Cumulative drop line length
125k bits/s	500m (1640ft)	100m (328ft)	156m (512ft)
250k bits/s	250m (820ft)	100m (328ft)	78m (256ft)
500k bits/s	100m (328ft)	100m (328ft)	39m (128ft)

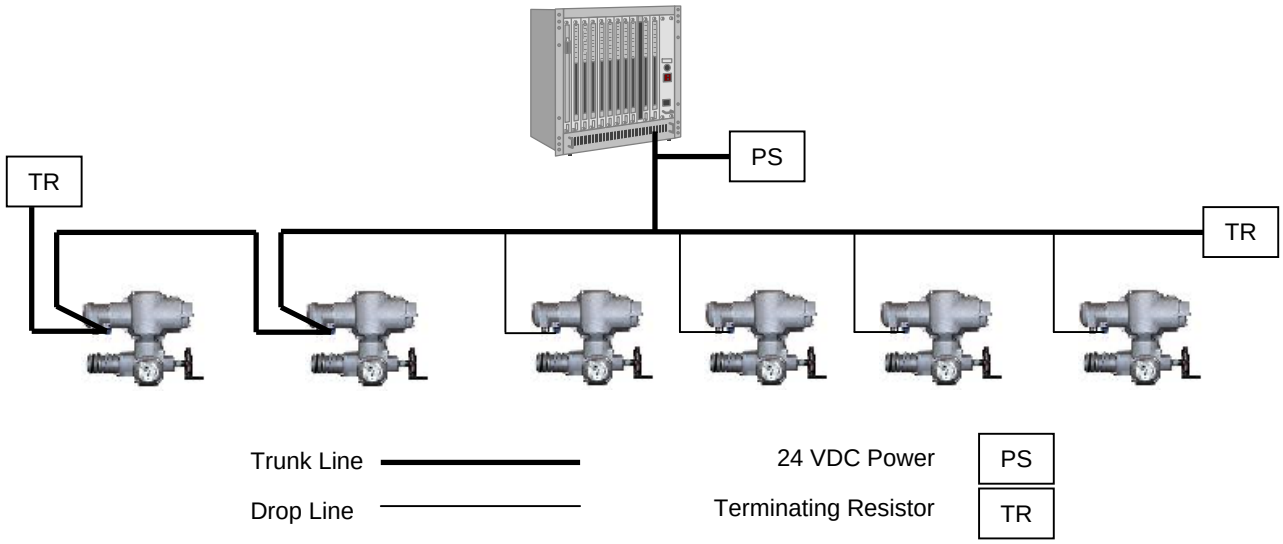


Figure 4-1
Typical bus with a combination of trunk line and drop line topology

Cable designed specifically for DeviceNet must be used to ensure proper communication. There are different types of DeviceNet cable including thick cable and thin cable. Thick cable is typically used as the trunk line cable and thin cable is typically used as the drop line cable. Manufactures such as Belden http://www.belden.com, Interlink http://www.interlinkbt.com/, Allen-Bradley http://www.ab.com/ and others all carry DeviceNet cable.

4.2 CDN455 Technical Information

4.2.1 Analog Inputs

The CDN455 provides two analog inputs AI1 and AI2 for customer use. If the actuator is configured for Analog control, input AI1 is used to provide the position setpoint to the actuator. If the actuator is configured for Network control, inputs AI1 and AI2 are available for customer use.

4.2.2 Analog Outputs

The analog output is a 4-20mA self-powered signal providing actuator position feedback. This is in addition to the actuator position feedback available from the DeviceNet process I/O.

4.2.3 Output Relay 2

Relay 2 is a dry contact Form C (SPDT) relay rated 5A @ 250VAC for customer use. This relay is energized from the Command Word via DeviceNet.

4.2.4 ESD

ESD is an emergency function that when set, will cause the actuator to either fail as is, or fail to a preset position. The actuator will respond the same as if it went into a fail mode. The setting of the Fail Mode determines how the actuator will respond to ESD. **This function is active only when the local selector switch is in Remote. The actuator can still be operated in the Local mode.**

4.2.5 Technical data table

Interface	CAN Controller Area Network Interface CAN 2.0 port with optically isolated Physical Layer Module. Supports DeviceNet Group 2 Slave, with Bus Voltage monitoring.	
Transmission medium	Two shielded twisted pair in one cable (power and signal on same network cable) per DeviceNet specifications.	
Communication protocol	DeviceNet	
Network topology	Linear (trunkline/dropline) bus, bus termination on both ends Removal of stations without affecting other stations	
Transmission Speed and Line Length Note: Kbaud = 1000 bits/s	data transfer rate	line length
	125 Kbaud 250 Kbaud 500 Kbaud	500 meters / 1640 ft. 250 meters / 820 ft. 100 meters / 328 ft. Note: CAN extenders allow much longer lengths (e.g.: 10 extenders at 125 Kbaud becomes 5,500 meters / 3.4 miles in length)
Number of Stations	64 stations per scanner	
Bus access	Master-Slave	
Error Management	Proven CAN Standard including CRC (Cyclic Redundancy Check) on each frame; Excellent diagnostic capabilities and network status.	
Control features	• Run OPEN • Run CLOSE • Stop • Run to Setpoint Position	
Indications	• End-of-travel positions OPEN, CLOSE • Continuous valve position • Selector switch in position LOCAL , REMOTE • Open torque switch tripped • Closed torque switch tripped	
Fault Indications	• Motor protection tripped – Thermal overload • Phase failure, wrong phase sequence	
Communication fail function	• Actuator performs fail action when the DeviceNet communication is interrupted.	
Analog / digital I/O	• 3 analog inputs • 8 digital inputs • 4 digital outputs • 1 analog output (4-20mA)	
DeviceNet Port Power Consumption	• 33mA At 24VDC, approx 60 mA 11 VDC	
Connection	Typical: • Connection board with integrated termination resistor and surge protection up to 1 KV. • Standard open style DeviceNet connectors with screw type terminals • Conduit entries: 2 x ¾" and 1 x 1" NPT (standard) Note: In certain configurations such as an actuator with an FM unit the connection board cannot be used. In these instances a plug and socket connection will be used. See electrical drawings supplied with actuator for type of connection supplied.	
Operating Temperature	-25 to +70 ºC	

4.3 Electrical Connection

4.3.1 Mains connection

Work on the electrical system or equipment must only be carried out by a skilled electrician and in accordance with the applicable electrical engineering rules.

- Refer to Figures 4.2 and 4.3
- Remove Terminal Housing for access to Plug and Socket .
- Remove Socket to gain access to Main connection terminals on socket.
- Insert mains cable thru Mains conduit entry
- Connect to terminals per supplied wiring diagram.

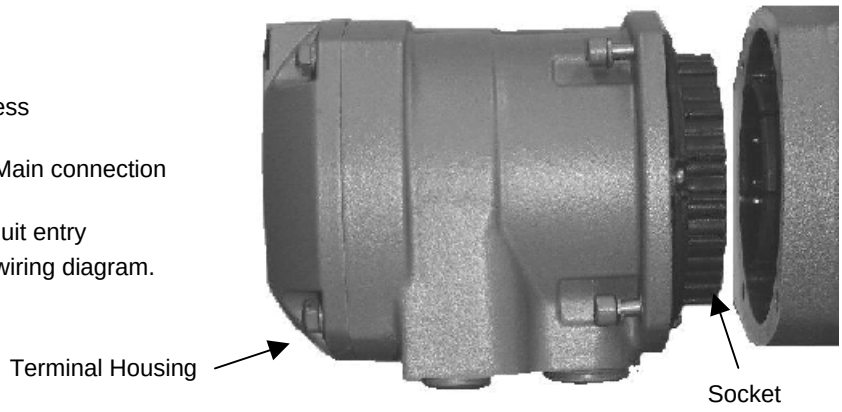


Figure 4-2

4.3.2 Bus connection

Disconnect power before removing the plug cover.

- The CDN795 connection board is located in the terminal housing (figure 4-3)
- Loosen and remove plug cover (figure 4-3).
- Insert cable thru Bus conduit entry.
- Connect incoming DeviceNet cable to X1 (figure 4-4).
- Connect outgoing DeviceNet cable to X2 (figure 4-4).
- For pin out of X1 and X2 see Table 4-5.

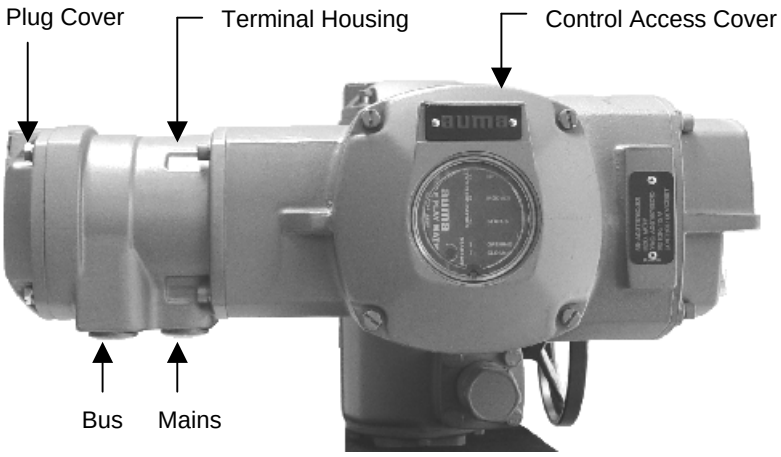


Figure 4-3

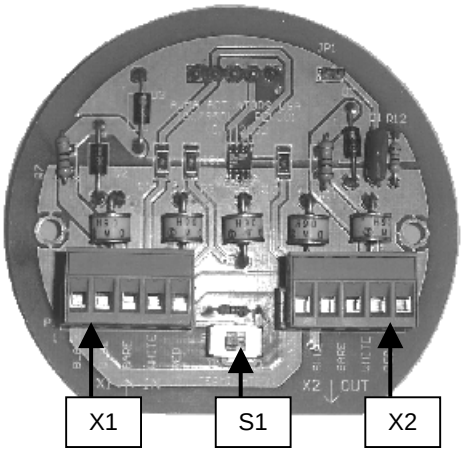


Figure 4-4
CDN795 Connection Board

Pin	Wire	Description
1	Black	V-
2	Blue	Can L
3	Bare	Drain
4	White	Can H
5	Red	V+

Table 4-5

The CDN795 connection board provides a 121 ohm termination resistor that can be switched ON and OFF with switch S1 (figure 4-4). The termination resistor should be switched ON only if the actuator is the first or last node on the bus and no other termination resistors are installed elsewhere on the bus.

5 Configuration

This section covers the setting of the switches to configure the CDN455 board for DeviceNet control or Analog control with DeviceNet monitoring. To gain access to the switches loosen and remove the Control Access Cover to gain access to the CDN455 board (figure 5-1). Figure 5-1shows the CDN455 control board with the access cover removed and the cover plate installed over the CDN455 control board. To gain access to the board itself remove the cover plate. Appendix A Board Layout also provides the locations of board components.

5.1 Setting Node Address

Default Address: 63

The allowable DeviceNet node addresses are 0-63. To set the node address use rotary switches SW1 and SW2. SW2 sets the one's digit and SW1 sets the ten's digit.

5.2 Control Mode

Default Mode: Network

The control mode determines if the actuator will be controlled via the network (DeviceNet) or by an analog signal (4-20mA). .

- Network – SW3-1= Off
- Analog – SW3-1 = On

5.3 Bus Select

Default Bus: DeviceNet

The CDN455 can communicate via DeviceNet or Modbus.

- DeviceNet – SW3-2= Off
- Modbus – SW3-2 =On

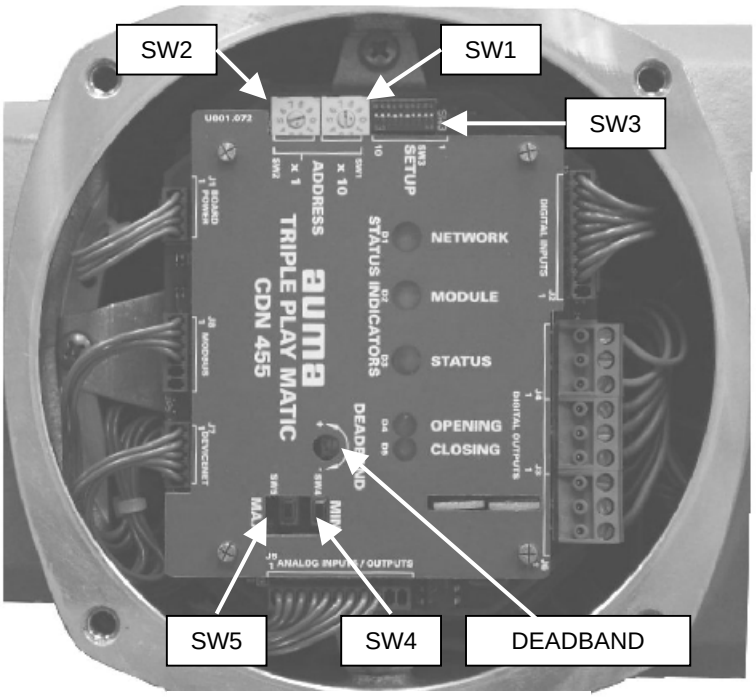


Figure 5-1

5.4 Data Rate (Baud Rate)

Default Data Rate: 125Kbits/s

DeviceNet supports three data rates: 125K baud, 250K baud, and 500K baud. See table 5-2.

SW3-3	SW3-4	Date Rate
Off	Off	125K
On	Off	250K
Off	On	500K

Table 5-2

5.5 Control Type

Default Control Type: Combination Control

This setting selects either Combination or Modulating. When Combination control is selected either open/close or modulating control is possible. The command word determines open/close or modulating control (See 7.5.6). When Modulating control is selected only modulating control is possible.

- Combination Control – SW3-5 = Off
- Modulating Control – SW3-5 = On

5.6 Fail Mode

Default Fail Mode: Fail As Is

Fail Mode determines the action of the actuator when in fail mode or the ESD mode is set. Fail Mode is defined as a loss of communication (DeviceNet or Modbus) after communication has first been established, or if the actuator is in analog control, the current signal is lost. See section 6.2 for setting the "Fail to Preset" position.

- Fail As Is – SW3-6 = Off
- Fail Preset – SW3-6 = On

5.7 Jumpers

Refer to Appendix A for jumper locations.

5.7.1 JP1

Jumper	Description	In	Out	Default
JP1	Used to download program- ***Factory use only***	Download program	Normal operation	Out

5.7.2 JP2 JP3&JP4

Jumper	Description	In	Out	Default
JP2	Selects Current or Voltage for analog input AI0	Current (0-20mA)	Voltage (0-5Vdc)	Out
JP3	Selects Current or Voltage for analog input AI1	Current (0-20mA)	Voltage (0-5Vdc)	In
JP4	Selects Current or Voltage for analog input AI2	Current (0-20mA)	Voltage (0-5Vdc)	In

5.7.3 JP5 & JP7

Jumper	Description	In	Out	Default
JP5	Connects board power Vloop to the DeviceNet V+	Connected	Not connected	Out
JP7	Connects board Gnd to the DeviceNet V-	Connected	Not connected	Out

5.7.4 JP5 & JP7

Jumper	Description	In	Out	Default
JP6	Connects DeviceNet Shield to earth Gnd	Connected	Not connected	Out

6 Calibration

This section describes the procedures to calibrate the position feedback, setting the Fail to Preset position, setting the analog position control and Deadband. Refer to Figure 5-1 or Appendix A for location of push buttons used in the calibration procedures.

6.1 Position Feedback

The CDN455 automatically calibrates the position feedback based on the open and close limit switches. In order for the position feedback to be calibrated, the open and close limit switches must first be set per the appropriate actuator manual. Once the limit switches are set the CDN455 will calibrate the position feedback each time the open and close limit switches are made.

6.2 Setting the analog position setpoint

When the actuator is configured for Analog Mode, the position setpoint is provided via analog input AI1. This input can be either current or voltage input (See 5.7.2). The actuator does not need to be operated to set the Zero (full close) and Span (full open). Note: the Zero signal must be less than the Span; cannot have a 20mA Zero and a 4mA Span.

- Set Zero (full close)
  - Apply analog signal desired for full close (Example: 4mA)
  - Press SW4 for approx. 5 seconds. LEDs D1,D2 & D3 will flash amber then solid green when accepted
- Set Span (full open)
  - Apply analog signal desired for full open (Example: 20mA)
  - Press SW5 for approx. 5 seconds. LEDs D1,D2 & D3 will flash amber then solid green when accepted

6.3 Setting the Deadband

The Deadband is a potentiometer adjustment on the CDN455 board (See Figure 5-1). This sets the allowable error around the setpoint when the actuator is in modulating mode. To prevent the actuator from constantly changing direction trying to reach the setpoint the deadband may need to be adjusted. To increase the deadband turn the potentiometer counter-clockwise and to decrease turn clockwise. The actual deadband value can be read from parameter 20 of the EDS file (see section7.4.2)

6.4 Setting “Fail to Preset” position

The “Fail to Preset” is the position the actuator will move to if it losses communication or the ESD function is set. This can be any position between 0-100% open. Remember the actuator must be configured to Fail to Preset (see 5.6) in order to move to a position in case of a communication failure. There are two methods for setting the Fail to Preset position.

Method One

- Using configuration tool such as RSNetworks for DeviceNet you can access parameter 45 of the CDN455 EDS file, which contains the Fail Position. With RSNetworks you can read and write to this parameter. See section 7.6 .

Method Two

- Using push buttons SW4 & SW5.
  - Move the actuator to the desired “Fail to Preset” position (0-100% open).
  - Press SW4 and SW5 at the same time for approx. 5 seconds. LEDs D1,D2 & D3 will flash amber then solid green when accepted

7 Control System Integration

For easy integration into the control system an EDS file (Electronic Data Sheet) is provided by AUMA. The EDS file (AUMA_CDN455.eds) is available on the AUMA-USA Website: www.auma-usa.com .The CDN455 DeviceNet interface is a slave on the network and supports polled I/O messaging with predefined Master/Slave connection set and explicit messages

The CDN455 predefined connection set has 4 Input Bytes and 4 Output Bytes.

7.1 Input Data

Data from actuator to the control system

Input Data = 4 bytes																
	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Status Word Byte 1 – Bits 0-7 Byte 2 – Bits 8-15	Control Mode	Fail Mode	—	Control Type	Alarm Active	Communication Failure	Loss of Local Setpoint	Loss of Position	Selector Sw. Local	Selector Sw. Remote	Thermo Alarm	Phase Alarm	Open Limit	Close Limit	Open Torque	Close Torque
Actuator Position Bytes 3&4	Actuator Position (0-1000)															

7.2 Output Data

Data from the control system to the actuator

Output Data = 4 bytes																
	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Command Word Byte 1 – Bits 0-7 Byte 2 – Bits 8-15	ESD	—	—	—	—	—	—	—	—	—	—	Enable Setpoint	—	Relay 2	Close	Open
Setpoint Word Bytes 3&4	Position command (0-1000)															

7.3 Description of Process I/O

7.3.1 Status Word

Input Bytes 1&2

Bit	Designation	Value	Description
0	Close Torque	1	Close Torque Switch set
		0	
1	Open Torque	1	Open Torque Switch set
		0	
2	Close Limit	1	Close Limit Switch set -actuator fully closed
		0	
3	Open Limit Switch	1	Open Limit Switch set -actuator fully open
		0	
4	Phase Alarm	1	
		0	Phase alarm set – phase of incoming power incorrect
5	Thermo Alarm	1	
		0	Motor thermal switch tripped
6	Selector sw. Remote	1	Actuator controlled remotely
		0	
7	Selector sw. Local	1	Actuator controlled from actuator control push buttons
		0	
8	Loss of Position	1	Loss of Position set when the actuator position feedback has been lost
		0	
9	Loss of Local Setpoint Alarm	1	Set if actuator is in Analog Mode and the analog position setpoint (AI1) is lost.
		0	
10	Communication Failure	1	Loss of DeviceNet connection
		0	
11	Alarm Active	1	Indicates one or more of the following : Loss of Position, Loss of Local Setpoint, Comm. Failure, Torque Switch Set, Thermo alarm, Phase Alarm
		0	
12	Control Type	1	Modulating mode only
		0	Combination mode- open/close or modulating mode possible.
13	-		
14	Fail Mode	1	Fail to Preset – if actuator losses communication or the ESD is active the actuator will move to a Preset position
		0	Fail as is – if actuator losses communication or the ESD is active the actuator will stay at its current position
15	Control Mode	1	Network – actuator will be controlled from DeviceNet
		0	Analog – actuator will be controlled via analog signal.

7.3.2 Actuator Position

Input Bytes 2&3

The actual position of the actuator transmitted as a scaled value between 0-1000 (0-100.0%)

7.3.3 Command Word

Output Bytes 1&2

Bit	Designation	Value	Description
0	Open	1	Run Open Command
		0	
1	Close	1	Run Close Command Word
		0	
2	Relay 2	1	Energize Relay 2
		0	
3	-	1	
		0	
4	Enable Setpoint	1	When the Control Type is set to Combination Mode setting this bit puts the actuator in Modulating Mode control
		0	If the Control Type is set to Combination Mode and this bit in not set, the control is open/close.
5	-		
6	-		
7	-		
8	-		
9	-		
10	-		
11	-		
12	-		
13	-		
14	-		
15	ESD	1	ESD mode set
		0	

7.3.4 Setpoint Word

Output Bytes 3&4

Provides the setpoint when the actuator is in Modulating mode. Scale is 0-1000 (0-100.0% Open).

7.4 EDS File

In addition to simplifiying configuring the control systems scanner the EDS file provides access to configuration and operational data. Using an engineering tool such as Rockwell's RSNetworks for DeviceNet certain configuration parameters can be changed and operational data can be read.

The EDS file may be found on the AUMA-USA Website: www.auma-usa.com .

7.4.1 Actuator Control Parameters – EDS File

Parameter	Description	Range	Default
1	Open cmd.	No Action, Open cmd.	No Action
2	Close cmd.	No Action, Close cmd	No Action
3	Relay 2	Off, On	Off
4	Relay 1	Off, On	Off
5	Enable Setpoint	Off, On	Off
6	ESD	Off, On	Off
32	Command Word	0-65535	0
33	Setpoint	0-1000	0

7.4.2 Actuator Operational Data – EDS File

Parameter	Description	Range	Default
7	Close torque active	No/Yes	n/a
8	Open torque active	No/Yes	n/a
9	Close limit active	No/Yes	n/a
10	Open limit active	No/Yes	n/a
11	Phase image	No/Yes	n/a
12	Thermostat image	No/Yes	n/a
13	Selector switch Remote	No/Yes	n/a
14	Selector switch Local	No/Yes	n/a
15	Status Word	0-65535	n/a
16	Extended Status	0-65535	n/a
17	Position	0-1000 (0-100%)	n/a
18	Analog Input 1 (AI1)	0-1000 (0-100%)	n/a
19	Analog Input 2 (AI2)	0-1000 (0-100%)	n/a
20	Deadband	0-150 (0-15.0%)	n/a

7.4.3 Actuator Historical Data – EDS File

Parameter	Description	Range	Default
23	# Motor Starts	n/a	0
24	# Cycles- actuator moved from full open to full close	n/a	0
25	# Starts Exceeded -1200/hr or 255/10 minutes	n/a	0
26	# Thermostat trip	n/a	0
27	# Limit trip	n/a	0
28	# Torque trip	n/a	0
29	# Running minutes	n/a	0
30	# Running seconds	n/a	0
31	# Starts per hour	n/a	0

7.4.4 Actuator Configuration Parameters – EDS File

Parameter	Description	Range	Default
35	InstRevTime- motor direction change delay.	0-255 (0-25.5sec)	5
38	Adc0 Scale - upper scale of analog input AI0	0-4095	1000
41	Adc1 Scale - upper scale of analog input AI1	0-4095	1000
44	Adc0 Scale - upper scale of analog input AI2	0-4095	1000
45	Fail Position –	0-1000	0

7.5 Troubleshooting Guide – DeviceNet

The CDN455 board has 5 LEDs that can be used to assist in troubleshooting. LED D1 shows the status of the network communication. LED D2 shows the status of module (CDN455 board). LED D3 shows the status of the actuator. LED D4 indicates the actuator is given an Open command and LED D5 indicates the actuator is given a Close command. The following tables assist in interpreting the meaning of the LED indications. Refer to Appendix A for LED locations.

7.5.1 LED D1-Network

State	Indicates	Action
Solid Green	The board is online and has connections in the established state and is allocated to a master.	Normal state, No action required.
Off	Board is not on-line. The board has not completed the Dup_MAC_ID test yet. The board may not be powered, look at D2 Module Status LED.	Apply DeviceNet network power. Ensure the setup switches are set for DeviceNet mode. If setup switch settings are found to be incorrect, set the switches correctly and cycle power.
Flashing Green	The board is on-line but has no connections in the established state. The board has passed the Dup_MAC_ID test, is on-line, but is not allocated to a master.	Add the actuator to the scan list of the DeviceNet master scanner
Solid Red	Critical link failure. The board has detected an error that has rendered it incapable of communicating on the network (Duplicate MAC ID, or Bus-off).	Check DeviceNet supply voltage. Check that no other nodes on the network have the same address. Cycle power to actuator.

7.5.2 LED D2-Module

LED D2	Event	Action
Solid Green.	The board is operating in a normal condition	Normal state, No action required.
Off	There is no power applied to the board	Check the power to the actuator.
Flashing Green	Board in Standby/needs configured Configuration missing, incomplete, or incorrect.	Check Device configuration in the Scanner
Red	Unrecoverable fault	Board may need replaced

7.5.3 LED D3-Status (actuator)

LED D3	Event	Modes
Solid Green	Normal state, No error	All modes
Flashing Green/Red	Thermal error or Phase error	All modes
Flashing Red	Open Torque or Close Torque Error	All modes
Flashing Amber	Loss of Setpoint Signal	only active in Analog Mode
Solid Amber	Local ESD	All modes
Solid Red	Loss of communication	All modes
Flashing Green/Amber	Remote ESD	All modes
Flashing Green	Selector Switch not in Remote	All modes

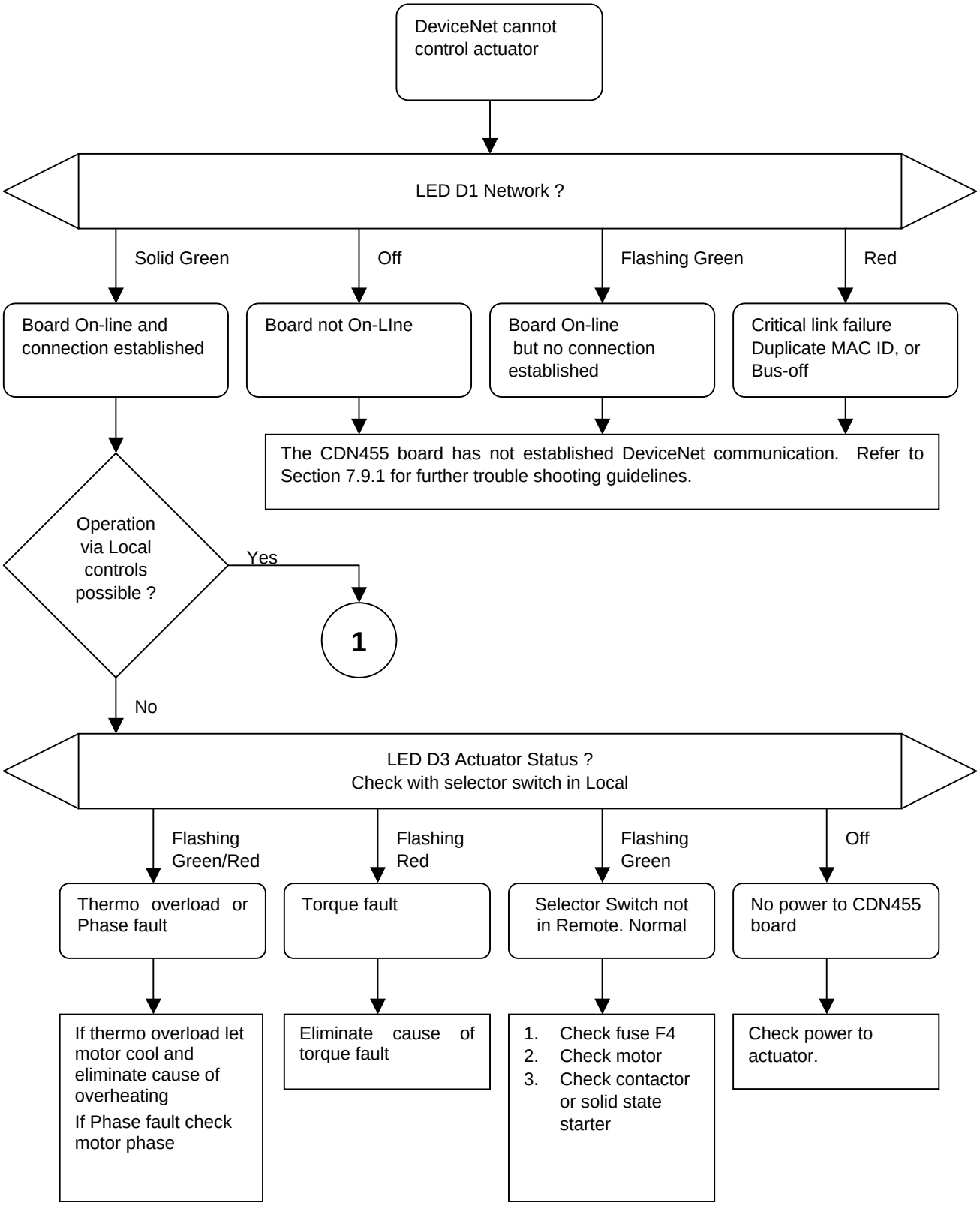
7.5.4 LED D4

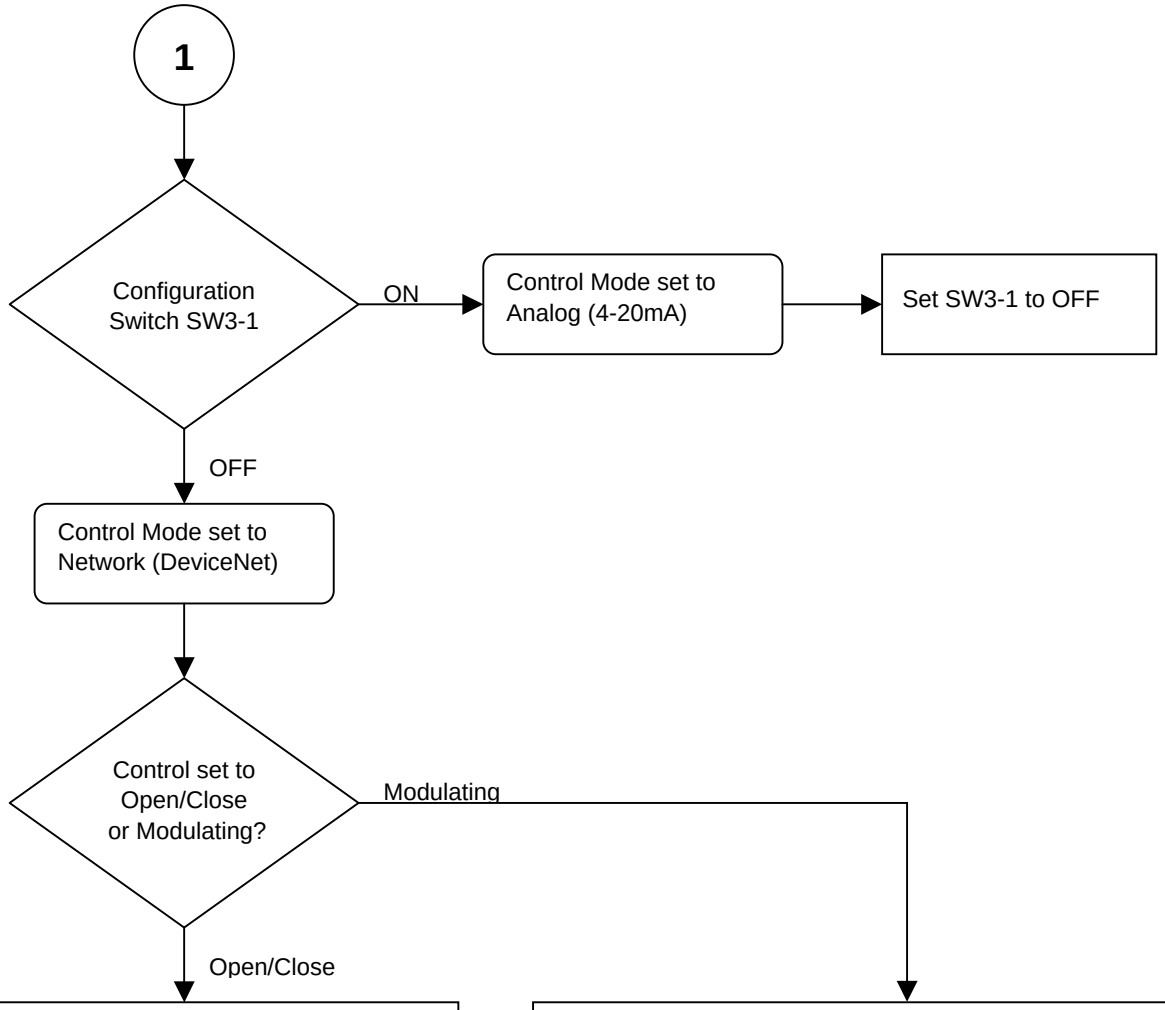
Indicates the Open digital output is activated.

7.5.5 LED D5

Indicates the Close digital output is activated.

7.5.6 Actuator cannot be controlled by DeviceNet





1. Check Control Type setting. Should be set to Combination Mode (SW3-5 set to OFF).

2. With selector switch in Remote position give an Open command and check if LED D4 lights up.
   a. No – Check control system programming
   b. Yes – ensure 115VAC is at (J6) pin 1 on CDN455 board.

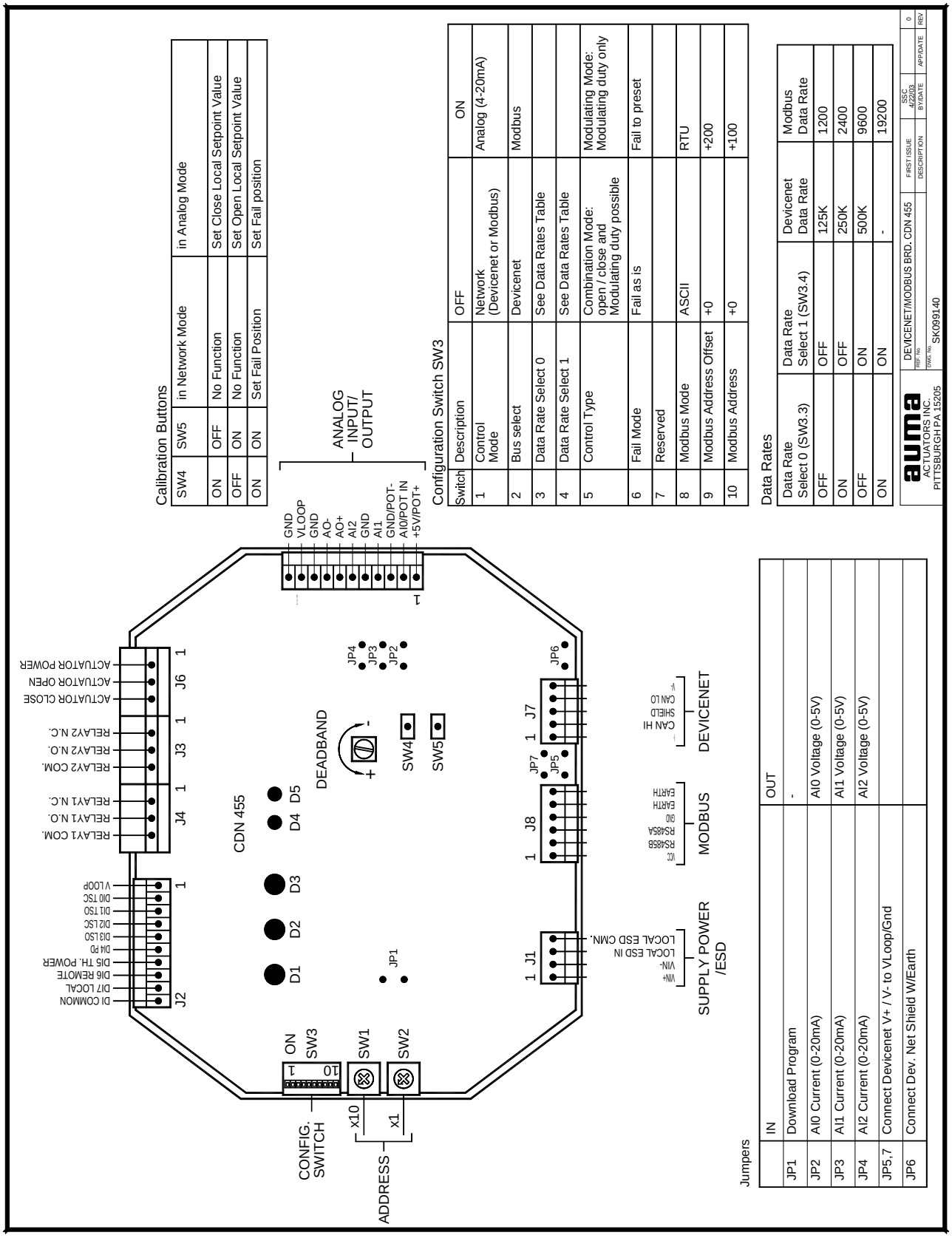
3. With selector switch in Remote position give a close command and check if LED D5 lights up.
   a. No – Check control system programming
   b. Yes – ensure 115VAC is at (J6) pin 1 on CDN455 board.

1. With selector switch in Remote position give the actuator a setpoint value above the current position of the actuator and check if LED D4 lights up.
   a. No – Check Programming and items 3 this box.
   b. Yes – ensure 115VAC is at (J6) pin 1 on CDN455 board

2. With selector switch in Remote position give the actuator a setpoint value below the current position of the actuator and check if LED D5 lights up.
   a. No – Check Programming and items 3.
   b. Yes – ensure 115VAC is at (J6) pin 1 on CDN455 board
   c. Check actuator Position Word to ensure actuator

3. Check Deadband of actuator and adjust if necessary.

8 Appendix A CDN455 Board Layout



Jumpers

	IN	OUT
JP1	Download Program	-
JP2	AI0 Current (0-20mA)	AI0 Voltage (0-5V)
JP3	AI1 Current (0-20mA)	AI1 Voltage (0-5V)
JP4	AI2 Current (0-20mA)	AI2 Voltage (0-5V)
JP5,7	Connect Devicenet V+ / V- to VLoop/Gnd	
JP6	Connect Dev. Net Shield W/Earth	