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SIGNALING

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Installation Instructions for 102 Series Triliptical® DeviceNet Stackable Beacon Lighting System

Description

The Edwards Triliptical DeviceNet Stackable Beacon Lighting System is a unique audible-visual signaling device that can contain up to 5 light modules and a multiple tone module in a single "stack."

All components of the Lighting System are UL listed subassemblies and cUL Listed. The enclosures are Type 3R, Type 4X and IP65 Rated. The unit has been tested by ODVA's authorized independent test lab and found to comply with ODVA conformance test software.

The optically designed lenses are available in five colors. Each lens module contains a removable cover to allow for easy relamping. The lens module cover features a molded-in gasket for weather tight reliability.

The Lighting System's base is supplied with a terminal block and may be used with an optional horn assembly. See Tables 1 and 2 for specification information.

NOTE: *The DeviceNet Electronic Data Sheet is available on the Edwards Signaling website at: http://www.edwards-signals.com/index.cfm?Level=147&PG=3&PID=19. Scroll down to "Installation Instructions" and click on "102 DeviceNet Electronic Data Sheet"*

Device Profile

Revision   1.00
Firmware Revision   1.02

The DeviceNet interface is in the Triliptical DeviceNet Base, 102TBS-DN. The base interfaces between the network and all installed stacklight modules.

The Triliptical DeviceNet Stackable Beacon is a slave device. It is a general purpose status indicator designed to indicate the status of a machine or process.

The Triliptical DeviceNet Stackable Beacon has LED, halogen, incandescent or strobe light sources which display the status of the machine or the process. The power required to drive the lamps is supplied separately from the bus power for the 120V AC (N5) version. DC power for the 24V DC (G1) version may be taken locally or from the DeviceNet Network. A standard open style 2 pin connector is used to connect 24V DC @ 1.75A (max) or 120V AC at 0.6A (max) to drive the 5 light sources.

The unisolated physical layer contains DeviceNet required mis-wiring protection circuitry. A standard open style (unsealed) 5 pin connector is used to connect the Stackable Beacon to the DeviceNet bus. The current draw from the bus is 0.12A for both the AC and DC versions.

The Triliptical DeviceNet Stackable Beacon contains a preprogrammed microcontroller which implements the Group 2 pre-defined Master/Slave Connection Set. This allows for one Explicit Messaging Connection and one Poll Connection. The objects (classes) supported are described in the next section. The Stackable Beacon resets automatically when DeviceNet power is applied.

1.0 Object Model

1.1 Object Present in the 102TBS-DN:

OBJECT	Optional/Required	# of Instances
Identity (1)	Required	1
Message Router (2)	Required	1
Devicenet (3)	Required	1
Assembly (4)	Required	1
Connection (5)	Required	1

1.2 Object that Effect Behavior:

OBJECT	Effect on Behavior
Identity (1)	Supports the reset service
Message Router (2)	No effect
Devicenet (3)	Configures port attributes
Assembly (4)	I/O assembly for lamps
Connection (5)	Establishes the number of connections

1.3 Object Interfaces:

OBJECT	Effect on Behavior
Identity (1)	Message router
Message Router (2)	Explicit message connection instance
Devicenet (3)	Message router
Assembly (4)	I/O connection or message router
Connection (5)	Message router

1.4 Identification of I/O Assembly Interfaces:

Instance Number	Type	Name
1	Input/Output	Lamps ON/OFF, Lamp diagnostics, and sounder control

1.5 Format of I/O Assembly data Attribute:

Input to the DeviceNet bus as a response to the poll command from master node.

Data Byte 0 value indicates the lamp is OK or it is either burned out or missing.

Data Byte 1 value indicates the lamp was on or off when last poll command was received.

Data Byte 2 value indicates the current sounder module control value.

For Units Configured with 5 Light Modules

BYTE	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
0	PWR FAIL 1=PWR LOST 2=PWR OK	DON'T CARE	DON'T CARE	LMP 5 1 = REP 0 = OK	LMP 4 1 = REP 0 = OK	LMP 3 1 = REP 0 = OK	LMP 2 1 = REP 0 = OK	LMP 1 1 = REP 0 = OK
1	DON'T CARE	DON'T CARE	DON'T CARE	LMP 5 1 = ON 0 = OFF	LMP 4 1 = ON 0 = OFF	LMP 3 1 = ON 0 = OFF	LMP 2 1 = ON 0 = OFF	LMP 1 1 = ON 0 = OFF
2	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	Sounder 1 = ON 0 = OFF	Tone MSB	Tone	Tone LSB

For Units Configured with 4 Light Modules

BYTE	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
0	PWR FAIL 1=PWR LOST 2=PWR OK	DON'T CARE	DON'T CARE	DON'T CARE	LMP 4 1 = REP 0 = OK	LMP 3 1 = REP 0 = OK	LMP 2 1 = REP 0 = OK	LMP 1 1 = REP 0 = OK
1	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	LMP 4 1 = ON 0 = OFF	LMP 3 1 = ON 0 = OFF	LMP 2 1 = ON 0 = OFF	LMP 1 1 = ON 0 = OFF
2	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	Sounder 1 = ON 0 = OFF	Tone MSB	Tone	Tone LSB

For Units Configured with 3 Light Modules

BYTE	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
0	PWR FAIL 1=PWR LOST 2=PWR OK	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	LMP 3 1 = REP 0 = OK	LMP 2 1 = REP 0 = OK	LMP 1 1 = REP 0 = OK
1	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	LMP 3 1 = ON 0 = OFF	LMP 2 1 = ON 0 = OFF	LMP 1 1 = ON 0 = OFF
2	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	Sounder 1 = ON 0 = OFF	Tone MSB	Tone	Tone LSB

For Units Configured with 2 Light Modules

BYTE	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
0	PWR FAIL 1=PWR LOST 2=PWR OK	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	LMP 2 1 = REP 0 = OK	LMP 1 1 = REP 0 = OK
1	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	LMP 2 1 = ON 0 = OFF	LMP 1 1 = ON 0 = OFF
2	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	Sounder 1 = ON 0 = OFF	Tone MSB	Tone	Tone LSB

For Units Configured with 1 Light Module

BYTE	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
0	PWR FAIL 1=PWR LOST 2=PWR OK	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	LMP 1 1 = REP 0 = OK
1	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	LMP 1 1 = ON 0 = OFF
2	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	Sounder 1 = ON 0 = OFF	Tone MSB	Tone	Tone LSB

Output to the 102TBS-DN with the poll command from master node.

Data Byte 0 value indicates the lamps to be turned ON or OFF.

Data Byte 1 value indicates the ON lamps to be Steady ON or Flashing and the Flashing rate (45, 60 or 80 flashes per minute) selected. Strobe units should always be set to Steady ON.

Data Byte 2 value indicates the sounder to be turned ON or OFF and the tone to be chosen.

For Units Configured with 5 Light Modules

BYTE	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
0	DON'T CARE	DON'T CARE	DON'T CARE	LMP 5 1 = ON 0 = OFF	LMP 4 1 = ON 0 = OFF	LMP 3 1 = ON 0 = OFF	LMP 2 1 = ON 0 = OFF	LMP 1 1 = ON 0 = OFF
1	0	0	1 45 FPM	LMP 5 1 = FLSH 0 = STDY	LMP 4 1 = FLSH 0 = STDY	LMP 3 1 = FLSH 0 = STDY	LMP 2 1 = FLSH 0 = STDY	LMP 1 1 = FLSH 0 = STDY
1	0	1 60 FPM	0	LMP 5 1 = FLSH 0 = STDY	LMP 4 1 = FLSH 0 = STDY	LMP 3 1 = FLSH 0 = STDY	LMP 2 1 = FLSH 0 = STDY	LMP 1 1 = FLSH 0 = STDY
1	1 80 FPM	DON'T CARE	DON'T CARE	LMP 5 1 = FLSH 0 = STDY	LMP 4 1 = FLSH 0 = STDY	LMP 3 1 = FLSH 0 = STDY	LMP 2 1 = FLSH 0 = STDY	LMP 1 1 = FLSH 0 = STDY
1	0 80 FPM DEFLT	0 80 FPM DEFLT	0 80 FPM DEFLT	LMP 5 1 = FLSH 0 = STDY	LMP 4 1 = FLSH 0 = STDY	LMP 3 1 = FLSH 0 = STDY	LMP 2 1 = FLSH 0 = STDY	LMP 1 1 = FLSH 0 = STDY
2	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	Sounder 1 = ON 0 = OFF	Tone MSB	Tone	Tone LSB

For Units Configured with 4 Light Modules

BYTE	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
0	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	LMP 4 1 = ON 0 = OFF	LMP 3 1 = ON 0 = OFF	LMP 2 1 = ON 0 = OFF	LMP 1 1 = ON 0 = OFF
1	0	0	1 45 FPM	DON'T CARE	LMP 4 1 = FLSH 0 = STDY	LMP 3 1 = FLSH 0 = STDY	LMP 2 1 = FLSH 0 = STDY	LMP 1 1 = FLSH 0 = STDY
1	0	1 60 FPM	0	DON'T CARE	LMP 4 1 = FLSH 0 = STDY	LMP 3 1 = FLSH 0 = STDY	LMP 2 1 = FLSH 0 = STDY	LMP 1 1 = FLSH 0 = STDY
1	1 80 FPM	DON'T CARE	DON'T CARE	DON'T CARE	LMP 4 1 = FLSH 0 = STDY	LMP 3 1 = FLSH 0 = STDY	LMP 2 1 = FLSH 0 = STDY	LMP 1 1 = FLSH 0 = STDY
1	0 80 FPM DEFLT	0 80 FPM DEFLT	0 80 FPM DEFLT	DON'T CARE	LMP 4 1 = FLSH 0 = STDY	LMP 3 1 = FLSH 0 = STDY	LMP 2 1 = FLSH 0 = STDY	LMP 1 1 = FLSH 0 = STDY
2	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	Sounder 1 = ON 0 = OFF	Tone MSB	Tone	Tone LSB

For Units Configured with 3 Light Modules

BYTE	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
0	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	LMP 3 1 = ON 0 = OFF	LMP 2 1 = ON 0 = OFF	LMP 1 1 = ON 0 = OFF
1	0	0	1 45 FPM	DON'T CARE	DON'T CARE	LMP 3 1 = FLSH 0 = STDY	LMP 2 1 = FLSH 0 = STDY	LMP 1 1 = FLSH 0 = STDY
1	0	1 60 FPM	0	DON'T CARE	DON'T CARE	LMP 3 1 = FLSH 0 = STDY	LMP 2 1 = FLSH 0 = STDY	LMP 1 1 = FLSH 0 = STDY
1	1 80 FPM	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	LMP 3 1 = FLSH 0 = STDY	LMP 2 1 = FLSH 0 = STDY	LMP 1 1 = FLSH 0 = STDY
1	0 80 FPM DEFLT	0 80 FPM DEFLT	0 80 FPM DEFLT	DON'T CARE	DON'T CARE	LMP 3 1 = FLSH 0 = STDY	LMP 2 1 = FLSH 0 = STDY	LMP 1 1 = FLSH 0 = STDY
2	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	Sounder 1 = ON 0 = OFF	Tone MSB	Tone	Tone LSB

For Units Configured with 2 Light Modules

BYTE	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
0	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	LMP 2 1 = ON 0 = OFF	LMP 1 1 = ON 0 = OFF
1	0	0	1 45 FPM	DON'T CARE	DON'T CARE	DON'T CARE	LMP 2 1 = FLSH 0 = STDY	LMP 1 1 = FLSH 0 = STDY
1	0	1 60 FPM	0	DON'T CARE	DON'T CARE	DON'T CARE	LMP 2 1 = FLSH 0 = STDY	LMP 1 1 = FLSH 0 = STDY
1	1 80 FPM	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	LMP 2 1 = FLSH 0 = STDY	LMP 1 1 = FLSH 0 = STDY
1	0 80 FPM DEFLT	0 80 FPM DEFLT	0 80 FPM DEFLT	DON'T CARE	DON'T CARE	DON'T CARE	LMP 2 1 = FLSH 0 = STDY	LMP 1 1 = FLSH 0 = STDY
2	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	Sounder 1 = ON 0 = OFF	Tone MSB	Tone	Tone LSB

For Units Configured with 1 Light Module

BYTE	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
0	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	LMP 1 1 = ON 0 = OFF
1	0	0	1 45 FPM	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	LMP 1 1 = FLSH 0 = STDY
1	0	1 60 FPM	0	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	LMP 1 1 = FLSH 0 = STDY
1	1 80 FPM	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	LMP 1 1 = FLSH 0 = STDY
1	0 80 FPM DEFLT	0 80 FPM DEFLT	0 80 FPM DEFLT	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	LMP 1 1 = FLSH 0 = STDY
2	DON'T CARE	DON'T CARE	DON'T CARE	DON'T CARE	Sounder 1 = ON 0 = OFF	Tone MSB	Tone	Tone LSB

2.0   Standard Objects.

2.1   Identity Object (Class ID = 1).

There is a single instance of the identity object for the Triliptical DeviceNet Stackable Beacon. No class attributes are supported. All of the instance attributes are contained in rom and are gettable but not settable. The table below shows the values.

ATTRIBUTE ID	ACCESS RULES	NAME	DATA TYPE	VALUE
1	Get	Vendor Code	Uint	0x201 (513)
2	Get	Product Type	Uint	0x0000
3	Get	Product Code	Uint	0x0001
4	Get	Revision	Word	01.01
5	Get	Status	UDINT	0x0000
6	Get	Serial #	Uint	UNIQUE SERIAL #
7	Get	Product Name	STRUCT	102

Identity Object Services:

SERVICE	SERVICE CODE	PARAMETERS
Get Attribute Single	0x0E	Attribute ID
Reset	0x05	0, 1

2.2   Message Router Object (Class ID = 2).

There is no externally visible interface to the Message Router Object.

2.3   DeviceNet Object (Class ID = 3).

There is a single instance of the DeviceNet Object for the Triliptical DeviceNet Stackable Beacon.

DeviceNet Object Class Attributes:

ATTRIBUTE ID	ACCESS RULES	NAME	DATA TYPE	VALUE
1	Get	Revision	Uint	0x0002

DeviceNet Object Class Services:

SERVICE	SERVICE CODE	PARAMETERS
Get Attribute Single	0x0E	Attribute ID

DeviceNet Object Instance Attributes:

ATTRIBUTE ID	ACCESS RULES	NAME	DATA TYPE	VALUE
1	Get	Macid	Uint	Dipswitch
2	Get	Baud rate	USINT	Dipswitch
3	Get	BOI	BOOL	0x01 Auto-Reset 0x00 Hold
4	Get/Set	Bus off counter	USINT	0x00 (Set) Value (Get)
5	Get	Allocation info	STRUCT	Allocate Serv

DeviceNet Object Instance Services:

SERVICE	SERVICE CODE	PARAMETERS
Get Attribute Single	0x0E	Attribute ID
Set Attribute Single	0x10	Attribute ID
Allocate	0x4B	Allocation Choice Master MACID
Release	0x4C	Release Choice

2.4 Assembly Object (Class ID = 4)

There is a single instance of the Assembly Object for the Triliptical DeviceNet Stackable Beacon. No class attributes or services are supported for the Assembly Class.

Assembly Object Instance Attributes:

ATTR ID	ACCESS RULES	NAME	DATA TYPE	VALUE
3	Get/Set	Data	Struct	See Sect 1.5

Assembly Object Instance Services:

SERVICE	SERVICE CODE	PARAMETERS
Get Attribute Single	0x0E	Attribute ID
Set Attribute Single	0x10	Attribute ID

2.5   Connection Object (Class ID = 5).

There are two instances of the Connection object in the 102TBS-DN. Instance #1 is assigned to the Explicit Messaging Connection. Instance #2 is assigned to the Polled I/O Connection. The following table shows the attributes and the pre-defined values where applicable. No class attributes are supported.

Connection Object - Explicit Message Connection (Instance #1)

ATTR ID	ACCESS RULES	NAME	DATA TYPE	VALUE
1	Get	State	USINT	0x03
2	Get	Instance type	USINT	0x00
3	Get	Xport class trigger	USINT	0x83
4	Get	Produced CONN. ID	UINT	0x5FB for MACID 63
5	Get	Consumed CONN. ID	UINT	0x5FC for MACID 63
6	Get	Initial COMM. Characteristics	UINT	0x21
7	Get	Produced CONN. size	UINT	0x0007
8	Get	Consumed CONN. size	UINT	0x0007
9	Get/Set	Expected packet rate	UINT	Application dependent
10	N/A	N/A	N/A	Not used
11	N/A	N/A	N/A	Not used
12	Get/Set	Watchdog timeout action	USINT	0x01 Default
13	Get	Produced path length	UINT	0x0000
14	Get	Produced path	ARRAY OF USINT	<NULL>
15	Get	Consumed path length	UINT	0x0000
16	Get	Consumed path	ARRAY of USINT	<NULL>

Connection Object - Poll I/O Message Connection (Instance #2)

ATTR ID	ACCESS RULES	NAME	DATA TYPE	VALUE
1	Get	State	USINT	State Dependent
2	Get	Instance type	USINT	0x01
3	Get	Xport class trigger	USINT	0x82
4	Get	Produced CONN. ID	UINT	0x3FF for MACID 63
5	Get	Consumed CONN. ID	UINT	0x5FD for MACID 63
6	Get	Initial COMM. Characteristics	UINT	0x01
7	Get/Set	Produced CONN. size	UINT	0x03
8	Get/Set	Consumed CONN. size	UINT	0x03
9	Get/Set	Expected packet rate	UINT	Application dependent
10	N/A	N/A	N/A	Not used
11	N/A	N/A	N/A	Not used
12	Get/Set	Watchdog timeout action	USINT	(0x00 Default) 0, 1, 2
13	Get	Produced path length	UINT	0x0006
14	Get	Produced path	ARRAY OF USINT	20.04.24.01.30.03
15	Get	Consumed path length	UINT	0x0006
16	Get	Consumed path	ARRAY of USINT	20.04.24.01.30.03

Connection Object Services:

SERVICE	SERVICE CODE	PARAMETERS
Get Attribute Single	0x0E	Attribute ID
Set Attribute Single	0x10	Attribute ID

Installation

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⚠ WARNING

To prevent electrical shock, do not connect power until instructed to do so.

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Safety Message to Installers, Users, and Maintenance Personnel

The Triliptical DeviceNet Status Indicator must be installed in accordance with the latest edition of the National Electrical Code and/or other applicable local regulations, by a trained and qualified electrician. The selection of the mounting location, its controls and the routing of the wiring is to be accomplished under the direction of the facilities engineer.

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⚠ WARNING

To prevent electrical shock, do not connect to the system when power is on.

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NOTE: For NEMA Type 4X applications, it is recommended that the unit be conduit mounted vertically facing up.

1. Mount the Triliptical DeviceNet Stackable Beacon Base (102TBS-DN) by installing on 3/4" (19 mm) conduit (not supplied). Pull field wiring (if required) and DeviceNet wiring through the conduit entrance hole.

2. Assemble the stackable beacon lighting system (Figure 1).

    a. Pull the captive key in the lens module into the "out" position.

    b. Place the first lens module on top of the base.

    c. Push in the captive key to secure the lens module.

    d. Insert the appropriate light source into board grooves at bottom of lens module, ensuring that the four prongs on the PC board are aligned with the plug located in the back of the lens assembly.

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⚠ WARNING

Ensure the magnifier ring on the lens cover and the magnifier ring on the lens module are aligned (Figure 1).

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NOTE: When using LED light sources, ensure that the color of the LED light source and the lens assembly match.

    e. Place the lens assembly cover on the front of the lens module and secure using two captive screws.

    f. Repeat steps a through e for any remaining modules (up to 5).

    g. Once the last module has been assembled, place the cap on top and secure the cap with the captive screw.

Network & Field Connections

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⚠ CAUTION

Observe precautions for handling electrostatic sensitive devices while handling printed circuit boards.

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┌──────────────────────────────────────────────────┐
│  ⚠         WARNING                                 │
│                                                    │
│    To avoid electrical shock hazards, do not       │
│    connect wires when power is applied.            │
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1. Make DeviceNet connections to the 5 position female terminal block plug as indicated in the below table. The 5 DeviceNet bus terminals are silkscreened near the terminals on the printed circuit board. Make connections as follows:

Pin 5	V +	Red Wire
Pin 4	CAN_H	White Wire
Pin 3	Drain	Bare Wire
Pin 2	CAN_L	Blue Wire
Pin 1	V -	Black Wire

2. A two (2) position screw terminal is provided to connect either separate 24V DC or 120V AC (depending on version -G1 (24V DC) or -N5 (120V AC) light source operating power to the Triliptical DeviceNet Stackable Beacon. The terminals for the 24V DC unit are labeled as "+" and "-". Polarity is not important for the 120V AC unit. Make connections as follows:

Pin 1 (+)	+ 24V DC	Red Wire
Pin 2 (-)	- 24V DC	Black Wire

<div align="center">or</div>

Pin 1	120V AC	Black Wire
Pin 2	120V AC	White Wire

3. **For the 24V DC unit only**, if it is desired to power the light sources from DeviceNet power, jumper (V+) and (V-) on the 5 position DeviceNet terminal block to (+) and (-) respectively on the 2 position screw terminal.

Set DIPSWITCH S1 for the BAUD RATE and MAC ID required as follows:

Note the legend on the dipswitch for the sense of 0 and 1 (0 = OFF and 1 = ON)

	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8
BAUD RATE - 125 Kbps	0	0						
BAUD RATE - 250 Kbps	0	1						
BAUD RATE - 500 Kbps	1	0						
BAUD RATE - 125 Kbps	1	1						
MAC ID 0			0	0	0	0	0	0
MAC ID 1			0	0	0	0	0	1
MAC ID 2			0	0	0	0	1	0
MAC ID 3			0	0	0	0	1	1
MAC ID 4			0	0	0	1	0	0
MAC ID 5			0	0	0	1	0	1
MAC ID 6			0	0	0	1	1	0
MAC ID 7			0	0	0	1	1	1
MAC ID 8			0	0	1	0	0	0
MAC ID 9			0	0	1	0	0	1
MAC ID 10 (0x0A)			0	0	1	0	1	0
MAC ID 11 (0x0B)			0	0	1	0	1	1
MAC ID 12 (0x0C)			0	0	1	1	0	0
MAC ID 13 (0x0D)			0	0	1	1	0	1
MAC ID 14 (0x0E)			0	0	1	1	1	0
MAC ID 15 (0x0F)			0	0	1	1	1	1
MAC ID 16 (0x10)			0	1	0	0	0	0

	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8
MAC ID 17 (0x11)			0	1	0	0	0	1
MAC ID 18 (0x12)			0	1	0	0	1	0
MAC ID 19 (0x13)			0	1	0	0	1	1
MAC ID 20 (0x14)			0	1	0	1	0	0
MAC ID 21 (0x15)			0	1	0	1	0	1
MAC ID 22 (0x16)			0	1	0	1	1	0
MAC ID 23 (0x17)			0	1	0	1	1	1
MAC ID 24 (0x18)			0	1	1	0	0	0
MAC ID 25 (0x19)			0	1	1	0	0	1
MAC ID 26 (0x1A)			0	1	1	0	1	0
MAC ID 27 (0x1B)			0	1	1	0	1	1
MAC ID 28 (0x1C)			0	1	1	1	0	0
MAC ID 29 (0x1D)			0	1	1	1	0	1
MAC ID 30 (0x1E)			0	1	1	1	1	0
MAC ID 31 (0x1F)			0	1	1	1	1	1
MAC ID 32 (0x20)			1	0	0	0	0	0
MAC ID 33 (0x21)			1	0	0	0	0	1
MAC ID 34 (0x22)			1	0	0	0	1	0
MAC ID 35 (0x23)			1	0	0	0	1	1
MAC ID 36 (0x24)			1	0	0	1	0	0
MAC ID 37 (0x25)			1	0	0	1	0	1
MAC ID 38 (0x26)			1	0	0	1	1	0
MAC ID 39 (0x27)			1	0	0	1	1	1
MAC ID 40 (0x28)			1	0	1	0	0	0
MAC ID 41 (0x29)			1	0	1	0	0	1
MAC ID 42 (0x2A)			1	0	1	0	1	0
MAC ID 43 (0x2B)			1	0	1	0	1	1
MAC ID 44 (0x2C)			1	0	1	1	0	0
MAC ID 45 (0x2D)			1	0	1	1	0	1
MAC ID 46 (0x2E)			1	0	1	1	1	0
MAC ID 47 (0x2F)			1	0	1	1	1	1
MAC ID 48 (0x30)			1	1	0	0	0	0
MAC ID 49 (0x31)			1	1	0	0	0	1
MAC ID 50 (0x32)			1	1	0	0	1	0
MAC ID 51 (0x33)			1	1	0	0	1	1
MAC ID 52 (0x34)			1	1	0	1	0	0
MAC ID 53 (0x35)			1	1	0	1	0	1
MAC ID 54 (0x36)			1	1	0	1	1	0
MAC ID 55 (0x37)			1	1	0	1	1	1
MAC ID 56 (0x38)			1	1	1	0	0	0
MAC ID 57 (0x39)			1	1	1	0	0	1
MAC ID 58 (0x3A)			1	1	1	0	1	0
MAC ID 59 (0x3B)			1	1	1	0	1	1
MAC ID 60 (0x3C)			1	1	1	1	0	0
MAC ID 61 (0x3D)			1	1	1	1	0	1
MAC ID 62 (0x3E)			1	1	1	1	1	0
MAC ID 63 (0x3F)			1	1	1	1	1	1

4. If using the optional **Cat No. 102SIGMT-DN** multi-tone module, connect the five position female connector on the tone module to the upper set of male pins in the Triliptical DeviceNet Stackable Beacon Base. Set the selected tone in accordance with the table below. Set the third Byte (Data Byte 2) in accordance with the table below in order to access the required tone. "X" is the "Don't Care" State.
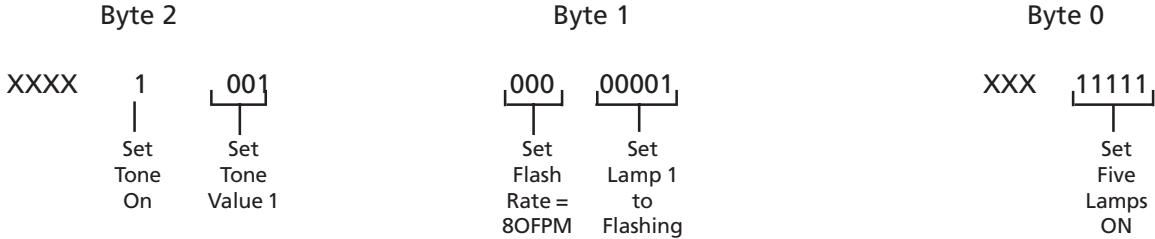
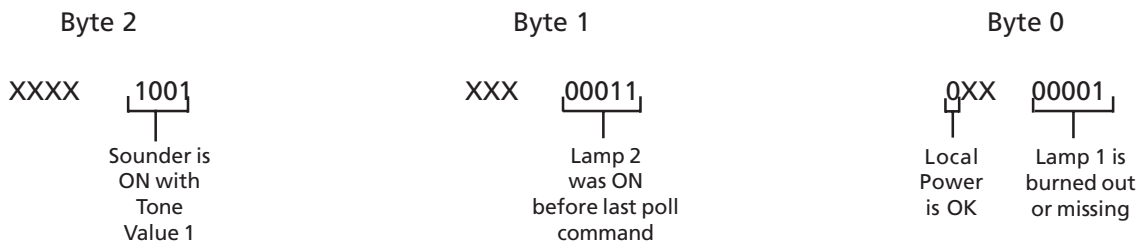| Tone	Bit3	Bit2	Bit1	Bit0
		Switch Settings*		
Tone Off	0	X	X	X
Stutter Beep	1	0	0	0
Continuous	1	0	0	1
3 Pulse Horn	1	0	1	0
Rapid Siren	1	0	1	1
Hi/Lo	1	1	0	0
Fast Whoop	1	1	0	1
Yeow	1	1	1	0
Beep	1	1	1	1

*1 is ON. 0 is OFF.

5. Install the 102TBS-* front cover or the optional 102SIGMT-DN-G1 multi-tone module by tightening the two captive front screws.

6. Test the Triliptical DeviceNet Stackable Beacon to ensure that it operates as intended.

To test the device for functionality the unit must be connected to a DeviceNet network via the five (5) pin connector. Turn on the network power supply and local power (if so configured) for the lamps. All lamps will flash instantaneously (some lamps may not be visible) as the unit checks for proper lamp operation. The value of the data byte in the master poll will be displayed on the lamps until it is changed by subsequent poll command. The pre-defined poll connection has consume size of three (3) bytes, and a produce size of three (3) bytes. When all the connections are released the lamps will display the last poll command data before release of the connection.

7. The following is an Output Data Byte example

Byte 2			Byte 1			Byte 0	
XXXX	1	001	000	00001		XXX	11111
	Set Tone On	Set Tone Value 1	Set Flash Rate = 8OFPM	Set Lamp 1 to Flashing			Set Five Lamps ON

8. The following is an Input Data Byte example:

Byte 2		Byte 1		Byte 0	
XXXX	1001	XXX	00011	0XX	00001
	Sounder is ON with Tone Value 1		Lamp 2 was ON before last poll command	Local Power is OK	Lamp 1 is burned out or missing

Maintenance

> ⚠ **WARNING**
>
> **To prevent electrical shock, disconnect network and local power to the unit. Wait 5 minutes for stored energy in strobe modules to dissipate before working on unit.**

Light Source Replacement

1. Loosen captive screws and remove cover of affected lens module.

2. Remove the light source assembly from the lens module.

3. Install new light source assembly ensuring that the four prongs on the PC board are aligned with the plug located in the back of the lens module.

> ⚠ **WARNING**
>
> **Ensure the magnifier ring on the lens cover and the magnifier ring on the lens module are aligned (Figure 1).**

4. Replace lens cover and secure using two captive screws.

Cleaning

The lens surfaces should be periodically dusted and cleaned with a dry soft clean cloth to maintain optimum light visibility. If necessary, the outside of the lens may be cleaned with water and a mild detergent on a well rung out soft clean cloth.
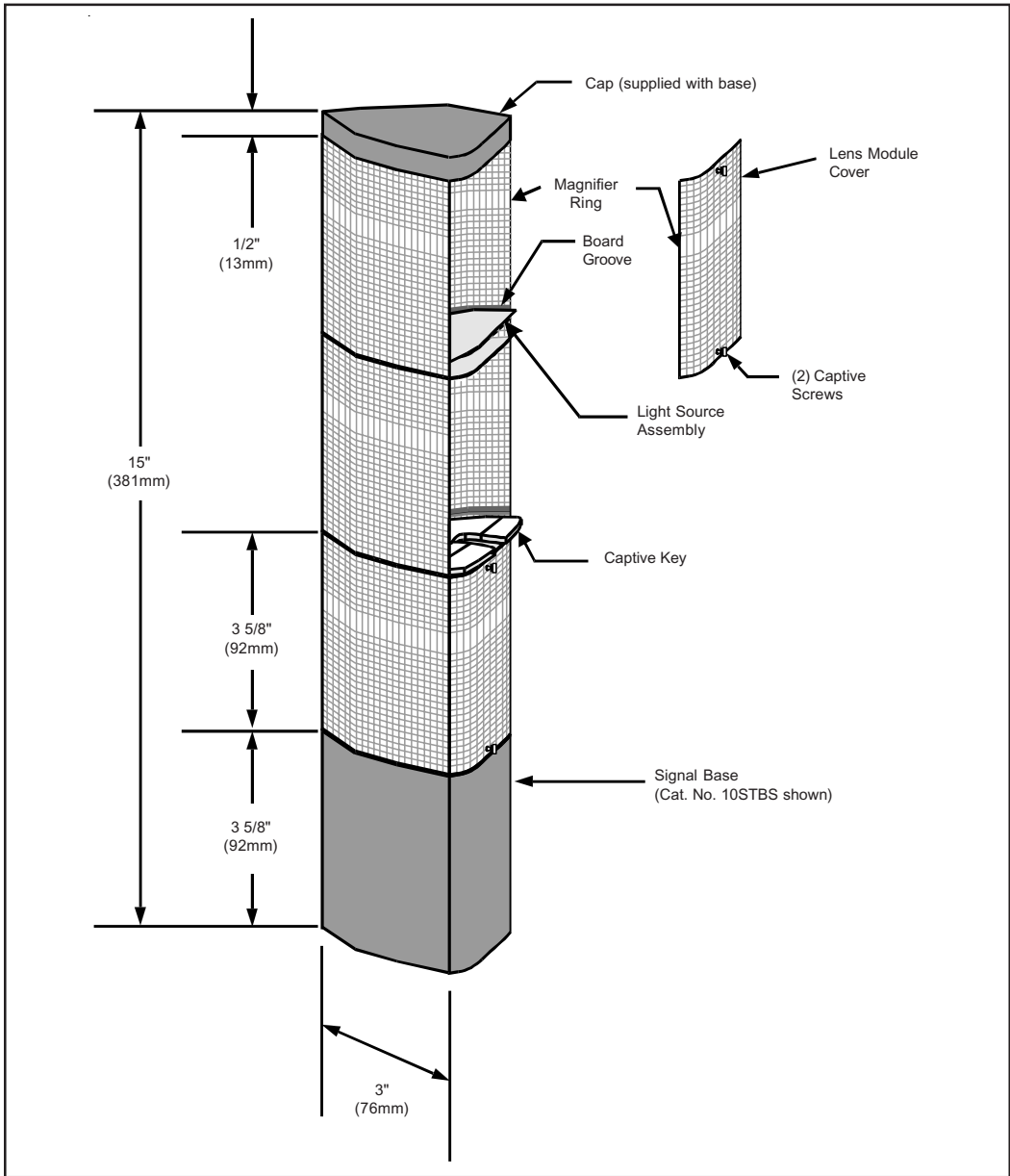
Figure 1. Assembling the Stackable Status Indicator

Cap (supplied with base)

Lens Module Cover

Magnifier Ring

Board Groove

(2) Captive Screws

Light Source Assembly

Captive Key

Signal Base (Cat. No. 10STBS shown)

1/2" (13mm)

15" (381mm)

3 5/8" (92mm)

3 5/8" (92mm)

3" (76mm)

Table 1. Triliptical DeviceNet Status Indicator Specifications

Catalog No.	Electrical Ratings	Manufacturers Lamp Ratings	Replacement Lamp	Lamp Life (hours) Calculated#	Projected##
Base Units					
102TBS-DN-G1	24V DC, 1.75A+	N/A	N/A	N/A	N/A
102TBS-DN-N5	120V AC, 0.60A+				
Optional Horn Assembly					
102SIGMT-DN-G1	24V DC, 0.05A	N/A	N/A	N/A	N/A
Lens Modules					
102LM-*	N/A	N/A	N/A	N/A	N/A
Light Sources					
102LS-SINH-G1	24V DC, 0.32A	9 Watts	50LMP-9WH	12,000	--
			or Ind. Trade 303***	3,000	--
102LS-SINH-N5	120V AC, 0.11A	12 Watts	50LMP-12WH	20,000	--
102LS-SIN-G1	24V DC, 0.32A	10 Watts	50LMP-10W or	10,000	--
			Ind. Trade 303	3,000	--
102LS-SIN-N5	120V AC, 0.08A	10 Watts	50LMP-10W	2,500	--
102LS-ST-G1	24V DC, 0.30A	3 Joule Strobe	--	3,000###	--
102LS-ST-N5	120V AC, 0.12A	3 Joule Strobe	--	3,000###	--
102LS-SLEDA-G1**	24V DC, 0.062A	--	N/A	100,000	--
102LS-SLEDB-G1**					
102LS-SLEDG-G1**					
102LS-SLEDR-G1**					
102LS-SLEDW-G1**					
102LS-SLEDA-N5**	120V AC, 0.022A	--	N/A	100,000	--
102LS-SLEDB-N5**					
102LS-SLEDG-N5**					
102LS-SLEDR-N5**					
102LS-SLEDW-N5**					

+Currents shown are for a stackable indicator with 5 light modules.
*Signifies lens module color (A - amber, B - blue, C - clear, G - green, R - red)
Signifies lens and LED module color (A - amber, B - blue, G - green, R - red) **NOTE: *LED light sources must be used with the corresponding color lens module (e.g., a blue LED light source, 102LS-SLEDB-G1, must be used with a blue lens, 102LM-B).*
***A non-halogen lamp, as listed, may be used in place of the halogen lamp.
#At nominal operating voltage.
##Projected lamp life based on manufacturer's calculated lamp life @ 65 fpm and 50% duty cycle.
###Strobe tube life @ operating power to 75% efficiency.

Table 2. Pertinent DeviceNet Specifications

Operating DeviceNet Bus Current	0.12A
Current Draw supplied by separate power supply (per Light Module)	DC: 0.062 to 0.320A AC: 0.022 to 0.120A
In-Rush Current supplied by separate power supply (per Light Module)	DC: 1.2A AC: 0.5A
Flash Rate (selectable via second data byte of POLL command)	45, 60 or 80 fpm
Operating Temperature	32F to 158F (0C to 70C)

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