Installation Instructions
Bulletin 842D DeviceNet Multi-Turn Absolute Encoders

IMPORTANT: SAVE THESE INSTRUCTIONS FOR FUTURE USE.

Specifications

Electrical

Code Format	Natural Binary
Code Direction	CW or CCW (programmable)
Electrical Interface	DeviceNet specification release 2.0
Operating Voltage	11–25V DC (24V DC recommended)
Power Consumption	1.8W (75mA @ 24V DC)
Max # of Steps/Revolution	8192
Max # of Revolutions	8192
Position Forming Time	0.3msec
Delay on Power Up	1050msec
Preset Position	Via covered rear button or DeviceNet

Mechanical

Angular Acceleration	5×10^5 radians/sec^2
Moment of Inertia	35gcm^2 (5.0×10^{-4}oz-in-sec^2)
Operating Speed	6000 RPM at max shaft loading
Starting Torque	2.5Ncm (3.5oz-in)
Shaft Loading	Axial 11lb (50N) Radial 67lb (300N)

Environmental

Housing	Aluminum
Temperature	-20°C to 85°C (-4°F to +185°F)—Operating -40°C to 125°C (-40°F to +257°F)—Storage
Humidity	98% noncondensing
Protection	NEMA Type 4, 13, IP66 (IEC 529)
Shock	100g/6msec
Vibration	20g/10–2000Hz
Approximate Weight	0.91kg (2lbs)

Selection Guide

Catalog Number	Electrical Connection
842D–60131331BDA	One 5 pin male micro QD
842D–60131331BXA	Two 5 pin micro QDs (one male & one female)

Electrical Connections

As shown in the selection guide, 842D DeviceNet encoders are available with one 5-pin male micro quick-disconnect or two 5-pin micro quick-disconnects (one male and one female). Pin configurations are per the DeviceNet specifications as follows.

Female Micro
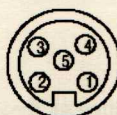
Male Micro

1	Drain	Bare
2	V+	Red
3	V–	Black
4	CAN_H	White
5	CAN_L	Blue

ATTENTION: Wiring must be in accordance with the National Electric Code and applicable local codes and ordinances.

Manuals and Software

Commissioning the 842D DeviceNet encoder requires an Electronic Data Sheet (EDS) file be loaded on the system running the bus management software. Typically, the EDS file is loaded on a computer running RSNetWorx for DeviceNet. The EDS file may be downloaded from our website at: *www.ab.com/networks/eds/* . Simply select "DeviceNet," "RA-Miscellaneous" and press the "Search" button. Select the 842D encoder. This will allow you to download file 00010073002E0400.eds. The User's Manual may also be downloaded from our website at: *www.ab.com/manuals/sn/ER.htm*.

Saving Parameter Values to EEPROM

Unless parameter values are saved to EEPROM, changes made to parameter values will not be restored when power is cycled. In RSNetWorx parameter values are saved to EEPROM via the Class Instance Editor. Please see the *User's Manual* for further details.
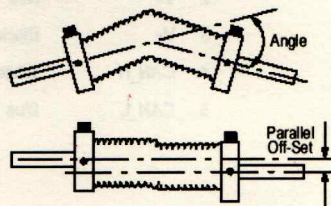
Mounting Instructions

1. Be sure to select the proper size flexible coupling clamp to mate to the encoder shaft, e.g., 845–FC–*–*. See Encoder Accessories in *Sensors* catalog.

ATTENTION: Do not rigidly connect the encoder shaft to the machine; this will cause premature failure of the encoder or machine bearings. Always use a flexible coupling.

Flexible Shaft Couplings

2. Use the dimension drawings to determine the encoder mounting hole locations.
3. Slide the flexible coupling onto the shaft, but do not tighten the set screws.
4. Mount the encoder and tighten with three size M4 mounting screws (not supplied).
5. Center the flexible coupling and tighten the set screws.
6. Rotate the machine slowly and verify that the flexible coupling is not deforming beyond specifications.
7. Align machine to its mechanical zero or home position. Remove slotted cover located on the back of the encoder and press the preset position button to change the position value to the preset value (the factory preset value is zero). Replace cover.

Preset

To preset the position of the encoder, remove the slotted cover from the back of the encoder and press the button inside.

ATTENTION: Pressing the preset position button results in a change of position reading. This can cause unexpected motion which could result in damage to the product, equipment, or personal injury.

Indicator

LED	Status
Off	Not connected not on-line
Green Blinking	Active but not allocated by master
Green Steady	Active and allocated by master
Red Blinking	Minor fault and/or connection interrupt
Red Steady	Critical communication fault

Setting the MAC–ID (node address), Baud Rate and Bus Termination Dip Switches

ATTENTION: Connecting this product to an operational DeviceNet network with improperly set DIP switches usually will cause the entire network to stop communicating. Baud rate setting must be the same as the rest of the network and the MAC–ID must be different than the rest of the network.
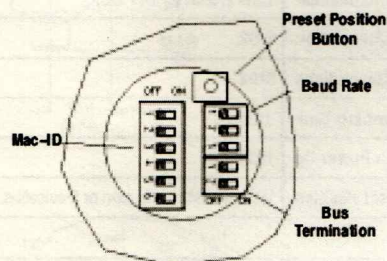
MAC–ID

DIP–6	DIP–5	DIP–4	DIP–3	DIP–2	DIP–1	Address
2^5	2^4	2^3	2^2	2^1	2^0	
0	0	0	0	0	0	0
0	0	0	0	0	1	1
...	...	...	...	...	...	...
1	1	1	1	1	1	63

0 = DIP switch is OFF
1 = DIP switch is ON

Baud Rate

DIP–3	DIP–2	DIP–1	Baud rate
X	0	0	125 kBaud
X	0	1	250 kBaud
X	1	0	500 kBaud
X	1	1	125 kBaud

X = don't care
0 = DIP switch is OFF
1 = DIP switch is ON

Bus Termination

The recommended method for connecting DeviceNet products is to run a "trunk line" with 120 ohm resistors connected at each end. DeviceNet products are then connected as "drops" along the length of the trunk line. In this configuration, the internal termination resistor of the 842D should not be used and the bus termination DIP switches should be off.

When 842D encoders are connected in a "daisy chain" configuration, the internal termination resistor may be used on the **end positions only**. In this configuration, the **end** 842D(s) should have their bus termination DIP switches turned on. Further details on termination resistors can be found in publication DN–6.7.2 *DeviceNet Cable System Planning and Installation Manual.*

ATTENTION: If you do not use terminating resistors as described here and in publication DN–6.7.2, the DeviceNet cable system will **not** operate properly.
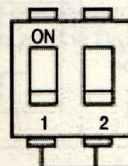
Bus termination
1 and 2 OFF: not active
1 and 2 ON: active

Note: Remote setting of the DIP switches via a Node Commissioning Tool is not supported at this time.

Rockwell Automation

Allen-Bradley

Dimensions—mm (in)

8.8/9.2 (0.34/0.37)
9.98/9.99 (0.392/0.393)
35.94/35.98 (1.415/1.416)
18/20 (0.71/0.79)
18 (0.71)
Ø53.8 (2.12)
Ø59.5 (2.34)
70 (2.756)
3 (0.12)
10 (0.39)
13 (0.51)
6 (0.24)
27.8 (1.09)
18.8 (0.74)
105.8 (4.16)

Diagnostic LEDs
Screw Cover for DIP Switches and Reset Button
Single QD
65 (2.56)

M4 x 7 (0.28) deep on a 48.0 (1.89) diameter bolt circle 3 places 120° apart
120°
35°
Ø48 ±0.1 (1.89)
Single QD

Diagnostic LEDs
Screw Cover for DIP Switches and Reset Button
Double QD
65 (2.56)

M4 x 7 (0.28) deep on a 48.0 (1.89) diameter bolt circle 3 places 120° apart
120°
35°
Ø48 ±0.1 (1.89)
Double QD