Installation Instructions
Bulletin 842–SPA Serial to Parallel Adaptor

IMPORTANT: SAVE THESE INSTRUCTIONS FOR FUTURE USE.

Specifications

Size	103 x 165mm (4 x 6.5in)
Voltage Supply	11–32V DC
Supply Current	250mA (without load)
Operating Temperature	0°C to 50°C (32°F to 122°F)
Output Driver (parallel)	Push-pull, 10–32V, 35mA (max)
Input (SSI)	RS422
Maximum SSI Cable Length	350m @ 125kHz; 25m @ 500kHz

Mounting Instructions

1. Locate and mount the 842–CH cardholder (purchased separately) close to the controller. See the Dimensions section to determine the 842–CH card holder hole locations.
2. Wire the connections according to the a) Electrical Connections b) Jumpers Needed and c) Direction Control sections using wire size 26–16 AWG.

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

3. Insert the 842–SPA into the cardholder. Set the Hex Function switch on the 842–SPA to the appropriate setting as shown in Table 1 below:

Switch Setting	Clock Frequency	SSI Input	Parallel Output
4	500kHz	Binary	Binary
4	500kHz	Gray	Gray
5	125kHz	Binary	Binary
5	125kHz	Gray	Gray
6	500kHz	Gray	Binary
7	125kHz	Gray	Binary

4. Apply power supply of 11–32V DC to the 842–SPA.
5. The 842–SPA begins sending clock pulses and receives data pulses in the synchronous serial interface (SSI) format. An example timing diagram is in the Timing Diagrams section.
6. The parallel output data can be found on the following bits according to Table 2 below:

842A Encoder Type	Pulses Per Rev.	Bits Used LSB–MSB	No. of Revs.	Bits Used LSB–MSB
A	8192	1–13	2048	14–24
B	4096	1–12	4096	13–24
C	2048	1–11	8192	12–24
D	4096	1–12	512	13–21
E	4096	1–12	256	13–20

Electrical Connections

Type	Function	842–CH Terminal
Power & Ground	842–SPA and Output Driver Ground	1A, 2C, 25A❶
	842–SPA Power	32C,13C❶
	Parallel Output Driver Power	31A
	Encoder Power	32A
	Encoder Ground	1C,25C❶
SSI	Data +	26C
	Data –	26A
	Clock +	27C
	Clock –	27A
Parallel Output See Table 2 for Bit Distribution	Error Bit	2A❷
	Bit 1	3C
	Bit 2	3A
	Bit 3	4C
	Bit 4	4A
	Bit 5	5C
	Bit 6	5A
	Bit 7	6C
	Bit 8	6A
	Bit 9	7C
	Bit 10	7A
	Bit 11	8C
	Bit 12	8A
	Bit 13	9C
	Bit 14	9A
	Bit 15	14C
	Bit 16	14A
	Bit 17	15C
	Bit 18	15A
	Bit 19	16C
	Bit 20	16A
	Bit 21	17C
	Bit 22	17A
	Bit 23	18C
	Bit 24	18A

❶ Terminals are connected internally on the 842–SPA.

❷ The Error Bit is normally logic 0. If there is a power interruption (i. e. – low voltage) during data transmission, the Error Bit is set to logic 1.

Jumpers Needed

Connect the following three jumpers:

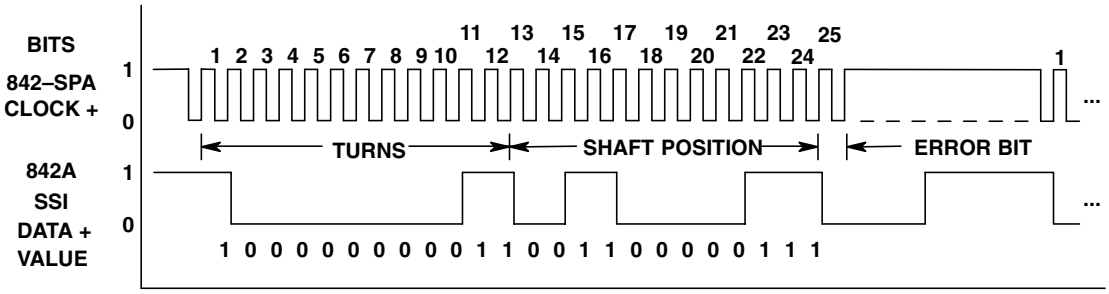
1. 842–SPA Ground (Terminal 1A) to Encoder Ground (Terminal 1C)
2. 842–SPA Power (32C) to Encoder Power (32A)
3. 842–SPA Power (13C) to Parallel Output Driver Power (31A)

Direction Control

When pin 12 of the encoder is connected to DC + (or left floating), the 842A will count UP when the shaft is turned CW when looking at the shaft. When pin 12 is connected to DC return, the 842A will count UP when the shaft is turned in the CCW direction when looking at the shaft.

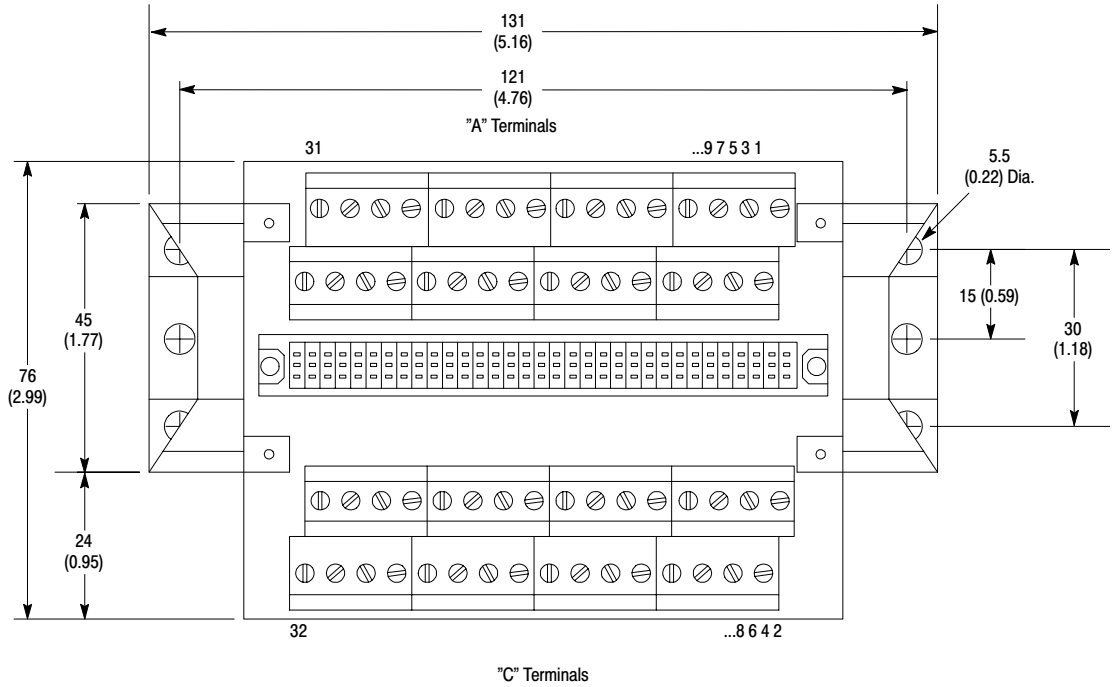
Timing Diagrams

Below is an example of a timing diagram as viewed on an oscilloscope. In this example, the 842A–31NB, a binary code output with 4096 pulses per revolution and 4096 turns is connected to an 842–SPA serial to parallel interface adaptor. The 842–SPA generates an SSI clock burst of pulses. On the positive slope of the start pulse, the 842A–31NB begins to transmit its position data. In the example below, the 842A–31NB is returning 100000000011 (2051 Turns) and 001100000111 (775 position). After the data is sent, the output remains in a low state for a short duration, then goes to a high state in anticipation of the next SSI clock burst. The Error Bit (bit 25) is normally zero. If there is a power interruption (e. g. – low voltage) during data transmission, the Error Bit is set high.



Dimensions

Use the figure below to locate the mounting holes of the 842–CH.



Allen-Bradley

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