

Frequency-To-Analog Converter



WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

NOTE: The label on the side of the frequency-to-analog converter makes references to the *IFMA Bulletin* for setup, hookup and operating instructions. This instruction sheet replaces the *IFMA Bulletin* and applies only to CanNeck system installations. Contact your Nordson Corporation representative for information about installing this converter in other systems.

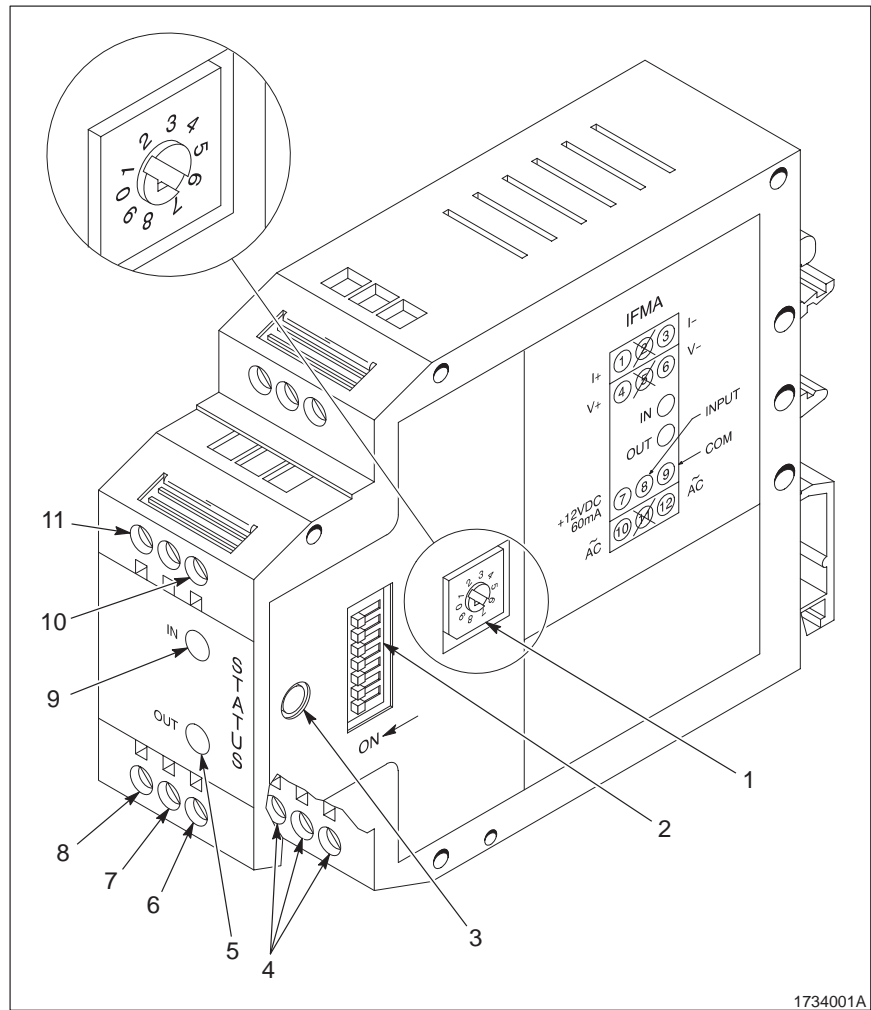
1. Introduction

See Figure 1. The frequency-to-analog converter receives an input signal from a proximity sensor and converts it into a 0–10 Vdc output. The voltage output is proportional to the line speed, which is measured in number of cans per second.

The converter consists of a

- rotary switch (1) for entering values
- seven-position DIP switch (2) for mode selection
- push-button (3) to store values
- red output LED (5)
- green input LED (9)

1. Introduction (contd)



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Fig. 1 Frequency-To-Analog Converter

- | | |
|---|---|
| 1. Rotary switch | 7. Proximity sensor connection (input signal) |
| 2. DIP switch | 8. Proximity sensor connection (+12 Vdc output) |
| 3. Push-button | 9. Green input LED |
| 4. ac power connections | 10. V- |
| 5. Red output LED | 11. V+ |
| 6. Proximity sensor connection (+12 Vdc common) | |

Note: When connecting wires to the converter, refer to the decal on the unit for terminal locations.

See Figure 2 for terminal locations and Table 1 for terminal functions.

Table 1 Terminal Functions

Terminal(s)	Function
4 and 6	Provides a 0–10 Vdc output signal proportional to line speed
7	Provides +12 Vdc output signal to the proximity sensor
8	Provides an input signal from the proximity sensor
9	Provides a +12 Vdc common to the proximity sensor
10 and 12	115 or 240 Vac power connections
1, 2, 3, 5, and 11	Not used

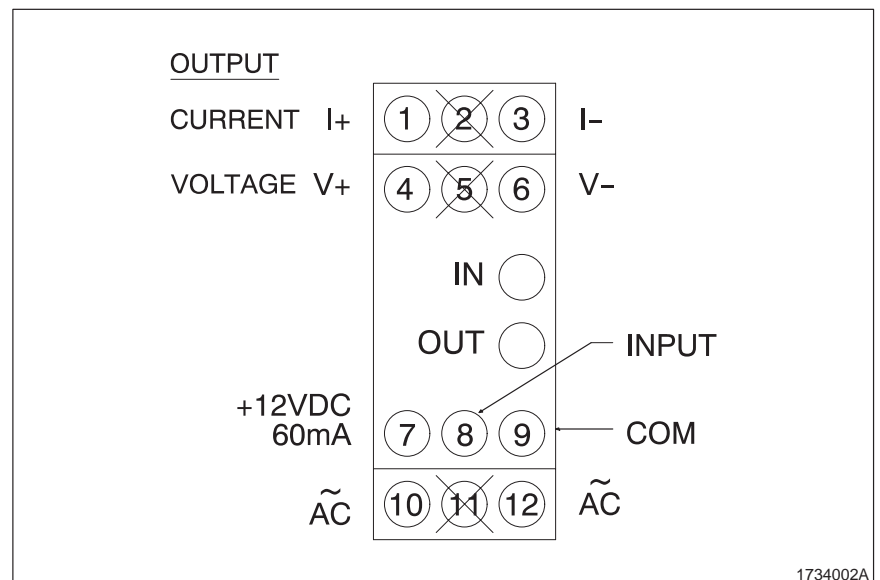


Fig. 2 Terminals

2. Configuration Setup

NOTE: Perform these procedures before installing and putting this converter into service.

Electrical Connections

See Figure 2.

1. Connect primary 115 or 240 Vac power to terminals 10 and 12.
2. Apply power to the converter.

Green Input LED

NOTE: The green input LED blinks the current numeric value of a setting (0–9) at a 1-Hz rate. For example, a setting of 1 is indicated by one blink ($\frac{1}{2}$ sec on, $\frac{1}{2}$ sec off). A setting of 9 is indicated by 9 blinks. A setting of 0 is indicated by a single short flash (40 msec on, 1 sec off). After the LED indicates the entire value, the converter pauses 2 seconds, then the green input LED repeats the value.

Sensor Input and Operating Mode

See Figure 1.

1. Set the DIP switches (2) as follows:

ON ↑	↓ OFF	↓	↑	↑	↑	↓	↓	↓
		1	2	3	4	5	6	7

2. Press the push-button (3). The green input LED (9) blinks rapidly.
3. Turn the rotary switch (1) to 2.
4. Press the push-button. The green input LED blinks twice, pauses, and repeats the pattern.
5. Set DIP switch 4 to OFF. The red output (5) LED comes on in about 4 seconds.

Minimum Response Time

See Figure 1. Perform the following steps to configure the converter for a minimum response time of 5 msec.

1. Set these DIP switches (2):

ON ↑	↓ OFF	↑	↓	↑	↑
		4	5	6	7

2. Press the push-button (3). The green input LED (9) blinks rapidly.

3. Turn the rotary switch (1) to 0.
4. Press the push-button (3). The green input LED blinks once, pauses, and repeats the pattern.
5. Set DIP switch 4 to OFF. The red output LED (5) comes on in about 4 seconds.

Maximum Response Time

See Figure 1. Perform the following steps to configure the converter for a maximum response time of 5 sec.

1. Set these DIP switches (2):

ON ↑	↓ OFF	↑	↑	↓	↓
		4	5	6	7

2. Press the push-button (3). The green input LED (9) blinks rapidly.
3. Turn the rotary switch (1) to 8.
4. Press the push-button. The green input LED blinks eight times, pauses, and repeats the pattern.
5. Set DIP switch 4 to OFF. The red output LED (5) comes on in about 4 seconds.

Maximum Line Speed

NOTE: The following is an example of how to determine and enter a maximum line speed value.

1. Use the following equation to determine the maximum line speed value in cans per second:

$$\frac{\text{Cans per minute}}{60} = \text{cans per second}$$

$$\text{Example: } \frac{2200 \text{ cans per min}}{60} = 36.6 \text{ cans per second} \quad (\text{Round up to } 37)$$

Six digits must be entered for a line speed value of 37: 3 7 0 0 0 [3]

NOTE: The sixth digit, [3], indicates the number of decimal places the line speed value is to the left.

Maximum Line Speed (contd)

2. See Figure 1. Set these DIP switches (2):

ON ↑	↓ OFF	↑	↓	↑	↓
		4	5	6	7

3. Press the push-button (3). The green input LED (9) blinks rapidly.

NOTE: The green input LED blinks rapidly until all digits are entered.

4. Enter the line speed value, In this example,

Turn the rotary switch to...	Then...
3	Press the push-button after each selection.
7	
0	
0	
0	
3*	
* This digit indicates decimal places to the left.	

NOTE: The green input LED blinks slow for each selection with the exception of 0. It blinks very rapidly for each 0 selection.

5. Verify the correct line speed value by watching the green LED blink. If the line speed value is incorrect, set DIP switch 4 to OFF and repeat steps 1 through 5.

NOTE: After the green input LED indicates the entire value, it pauses for 2 seconds and repeats the value.

6. Set DIP switch 4 to OFF. The red output LED (5) comes on in about 4 seconds. Configuration setup is complete.
7. Remove power from the converter.
8. Perform the *Installation* procedure.

3. Installation

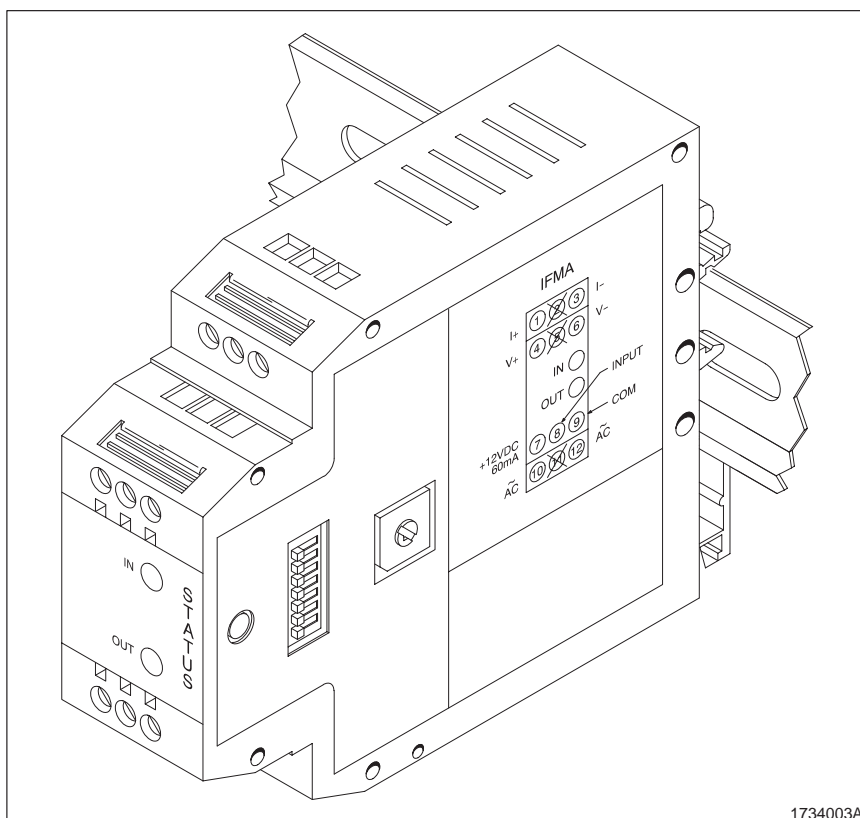


WARNING: Disconnect equipment from the line voltage. Failure to observe this warning may cause personal injury or equipment damage.

1. Open the enclosure door and gain access to the old converter.
2. Disconnect the wires from the old converter.
3. See Figure 3. Remove the old converter from the DIN rail.
4. Install the new converter on the DIN rail.

NOTE: The terminal locations are marked on the wires.

5. Connect the wires to the converter.
6. Close the enclosure door.

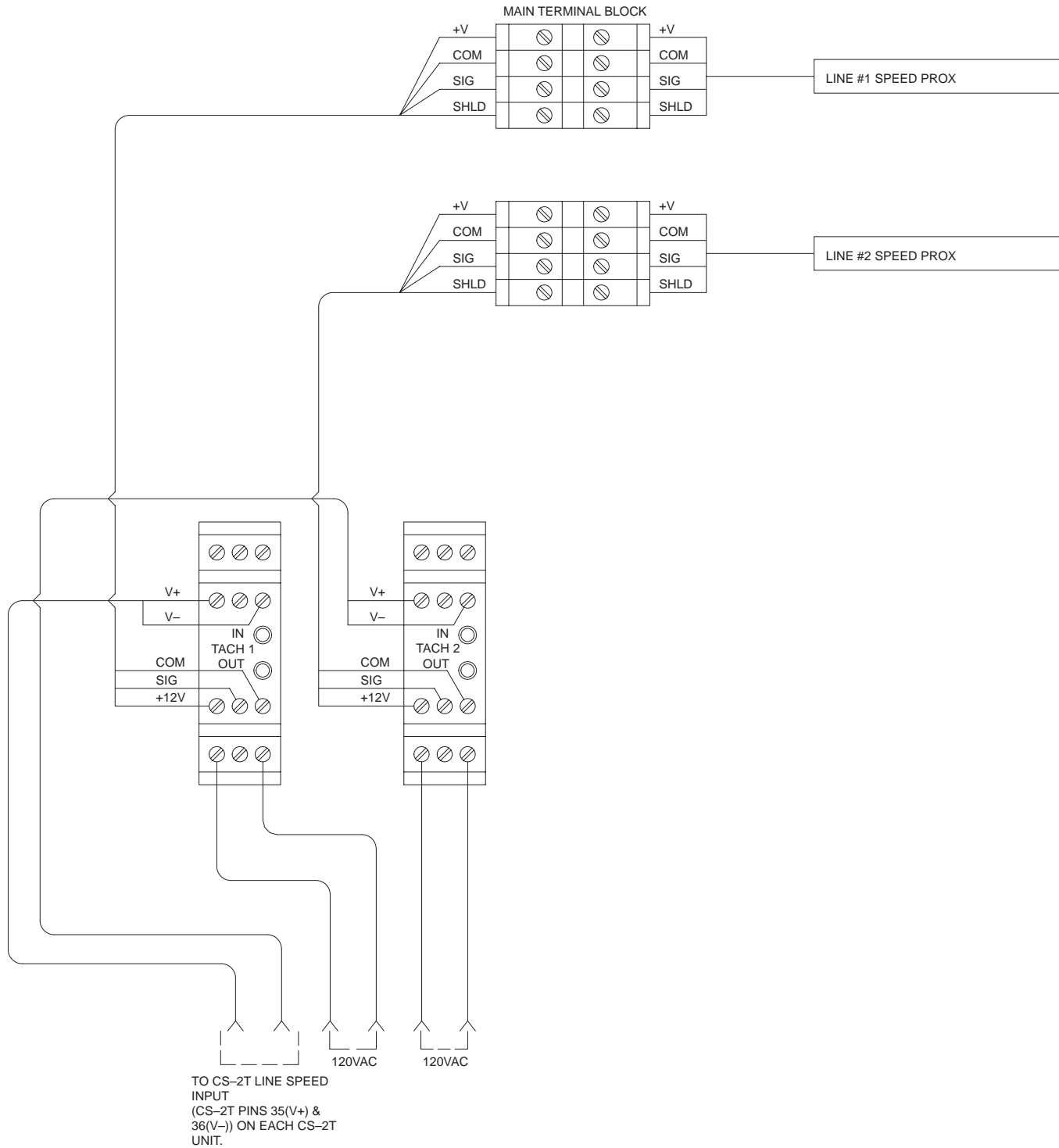


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Fig. 3 Removing the Converter from DIN Rail

4. Electrical Data

See Figure 4. Refer to the CanNeck circuit wiring diagram for connections to the analog converter.



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Fig. 4 Wiring Diagram

5. Parts

Use the following part number to order a frequency-to-analog converter.

Part	Description	Quantity
249 955	Converter, frequency to analog	1

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