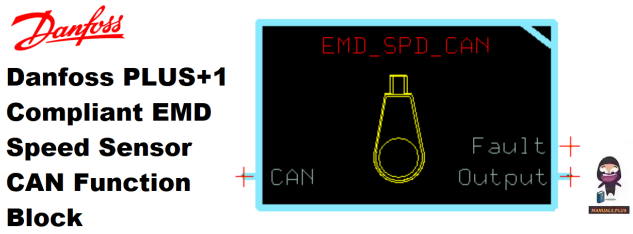


Danfoss PLUS+1 Compliant EMD Speed Sensor CAN Function Block User Manual

Contents

Danfoss PLUS+1 Compliant EMD Speed Sensor CAN Function Block

Specifications

- Product Name: PLUS+1 Compliant EMD Speed Sensor CAN Function Block
- Revision: Rev BA – May 2015
- Output Signals:
  - RPM Signal Range: -2,500 to 2,500
  - dRPM Signal Range: -25,000 to 25,000
  - Direction Signal: BOOL (True/False)
- Input Signal: CAN Bus

FAQ

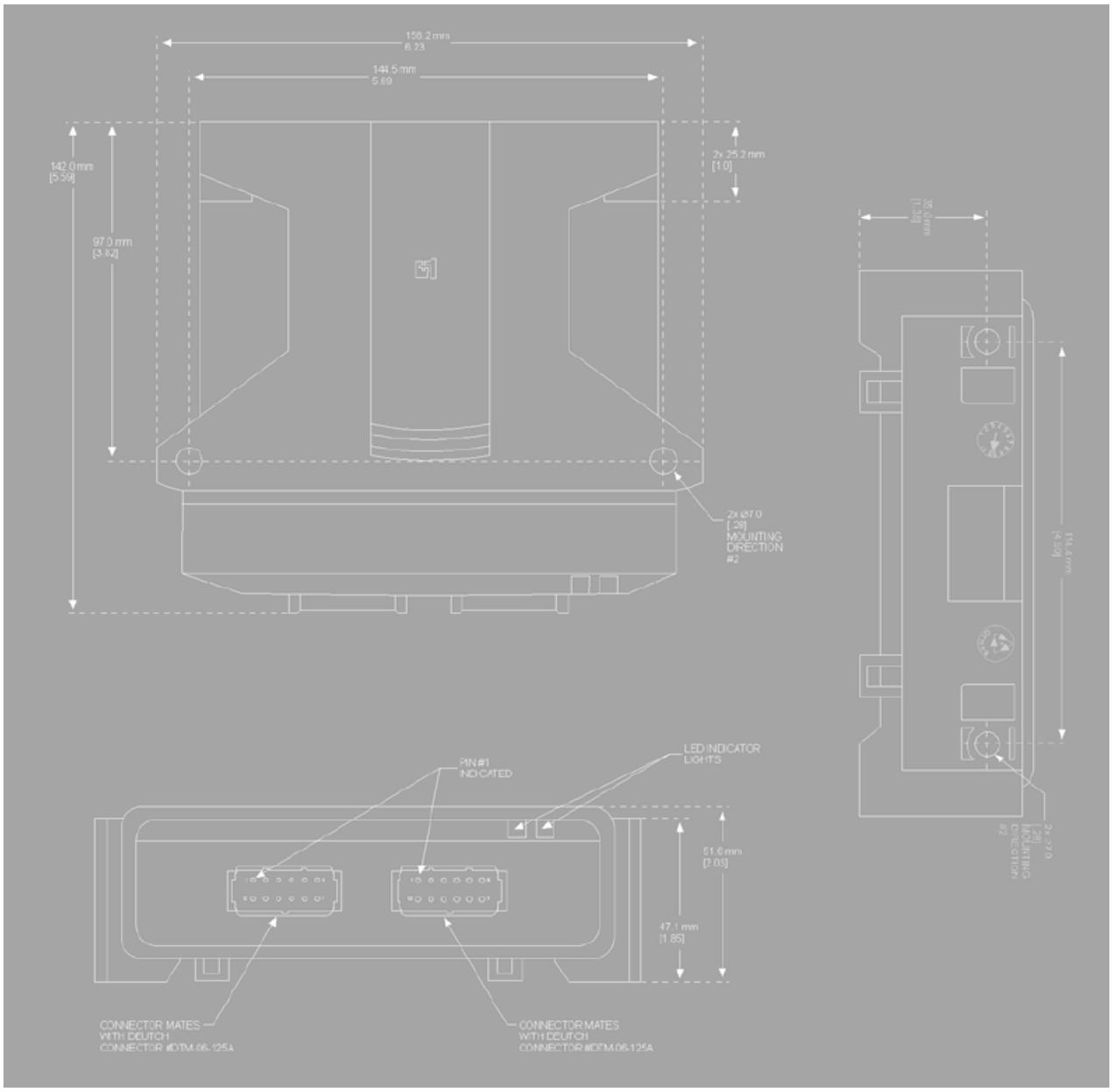
Q: How do I troubleshoot a CRC Error reported by the EMD_SPD_CAN Function Block?

A: If a CRC Error is reported, check for incompatible messages on the CAN bus. Use the fault signal to trigger an application response and ensure proper message handling.

Q: What does the RxRate parameter signify?

A: The RxRate parameter specifies the sensor's transmission interval between consecutive messages. It can have values of 10, 20, 50, 100, or 200, with 10 representing a transmission interval of 10 ms.

Dimension



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Revision History

Revision	Date	Comment
Rev BA	May 2015	

Overview

This function block outputs an RPM signal and a DIR signal based on inputs from an EMD Speed Sensor. All signals are received via the CAN communication bus.

Inputs

EMD_SPD_CAN Function Block Inputs

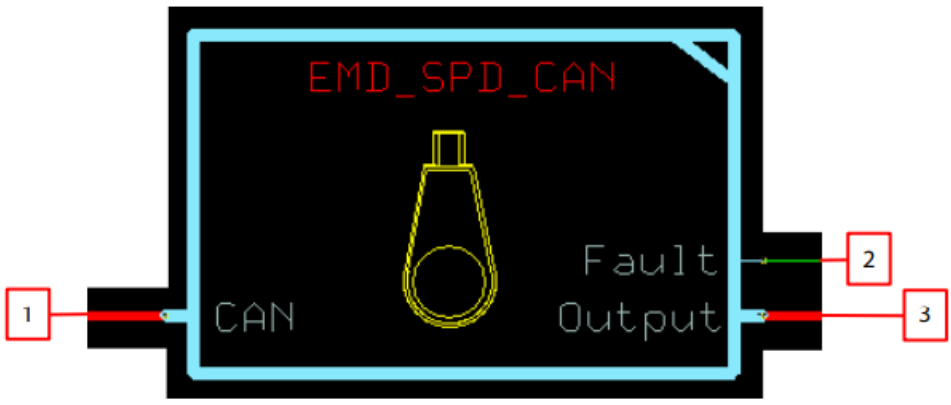
Input	Type	Range	Description
CAN	Bus	——	CAN port that receives messages from and transmits configuration commands to the EMD speed sensor.

Outputs

EMD_SPD_CAN Function Block Outputs

Output	Type	Range	Description
Fault	U16	——	Reports the function block's faults. This function block uses a non-standard bitwise scheme to report its status and faults. · 0x0000 = Block is OK. · 0x0001 = CAN message CRC error. · 0x0002 = CAN message count error. · 0x0004 = CAN message timeout.
Output	Bus	——	Bus containing output signals.
RPM	S16	-2,500 to 2,500	Speed sensor revolutions per minute. Positive values represent clockwise rotation. 1 = 1 rpm.
dRPM	S16	-25,000 to 25,000	Speed sensor revolutions per minute. Positive values represent clockwise rotation. 10 = 1.0 rpm.
Direction	BOOL	T/F	The Speed Sensor's direction of rotation. · F = Counterclockwise (CCW). · T = Clockwise (CW).

About Function Block Connections



Function Block Connections

Item	Description
1.	Determines the CAN port connected to the sensor.
2.	Reports the fault of the function block.
3.	Output bus containing the following signal information: **RPM** – Speed sensor revolutions per minute. **dRPM** – Speed sensor revolutions per minute x 10 (deciRPM). **Direction** – The Speed Sensor's direction of rotation. · F = Counterclockwise (CCW). · T = Clockwise (CW).

Fault Logic

Unlike most other PLUS+1 compliant function blocks, this function block uses non-standard status and fault codes.

Fault	Hex	Binary	Cause	Response	Delay†	Latch‡	Correction
CRC Error	0x0001	00000001	CAN bus data corruption	Previous outputs are reported.	N	N	Use fault signal to trigger application response. Check for incompatible messages on CAN bus.
Sequence Error	0x0002	00000010	Message sequence number received is not expected. Message dropped, corrupted, or repeated.	Previous outputs are reported.	N	N	Use fault signal to trigger application response. Check bus load and determine source of message issue.
Timeout	0x0004	00000100	Message not received within expected time window.	Previous outputs are reported.	N	N	Use fault signal to trigger application response. Ensure proper NodeId is set. Check bus for physical failure or overload.

A delayed fault is reported if the detected fault condition persists for a specified delay time. A delayed fault cannot be cleared until the fault condition remains undetected for the delay time.
The function block maintains a latched fault report until the latch releases.

Function Block Parameter Values

Enter the top-level page of the EMD_SPD_CAN function block to view and change this function block's parameters.

Function Block Parameters

Input	Type	Range	Description
RxRate	U8	10, 20, 50, 100, 200	The RxRate signal specifies the sensor's transmission interval between consecutive messages. Values of 10, 20, 50, 100, 200 are allowed. 10 = 10 ms.
NodeId	U8	1 to 253	Device address of the EMD speed sensor. This value matches the received CAN messages to the expected sensor. NodeId set to 1 for values less than 1 and set to 253 for values greater than 253. Default value is 81 (0x51).

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L1211728 · Rev BA · May 2015

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