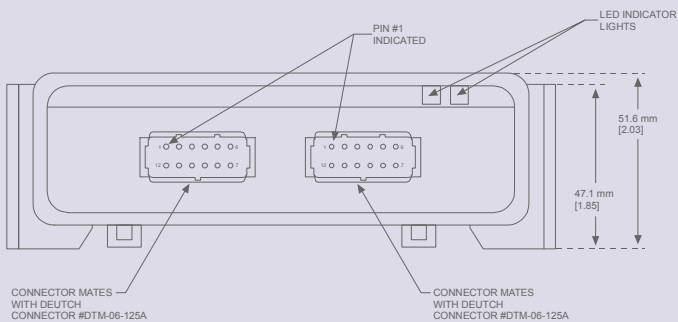
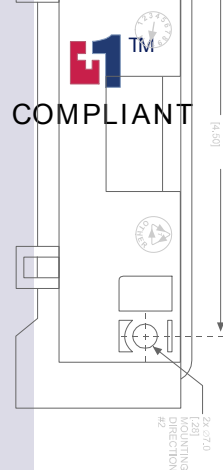
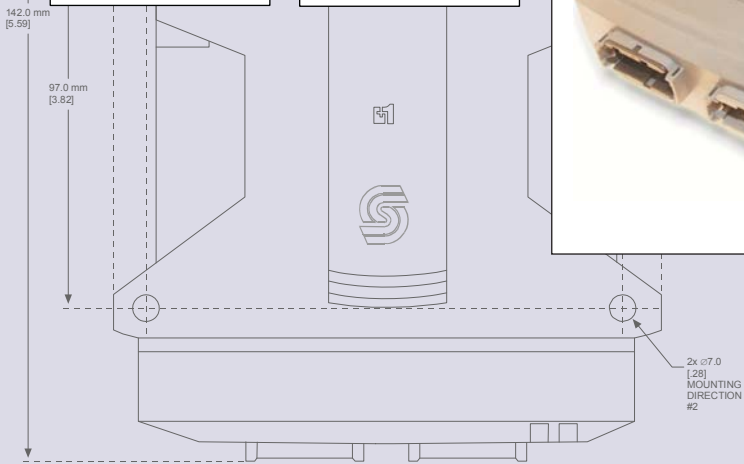
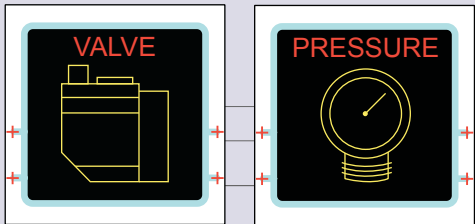
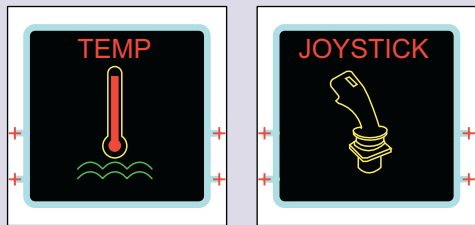


PLUS+1 Compliant
SASA Function Block
User Manual



About this Manual

Organization and Headings

To help you quickly find information in this manual, the material is divided into sections, topics, subtopics, and details, with descriptive headings set in **red type**. Section titles appear at the top of every page in **large red type**.

In the PDF version of this document, clicking an item *underlined in blue italic type* jumps you to the referenced page in the document.

Special Text Formatting

Controls and indicators are set in **bold black type**.

Table of Contents

A Table of Contents (TOC) appears on the next page. In the PDF version of this document, the TOC entries are hyperlinked.

Revision History

Revision	Date	Comment
Rev A	April 2007	
Rev AB	May 2010	

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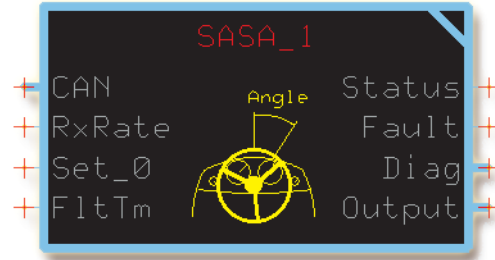
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Overview

The output of an **SASA** (Steering Angle Sensor Absolute) function block indicates the steering angle of a Sauer-Danfoss Steering Angle Sensor, and the amount that angle has changed since angle information was last received through a CAN message.

See [Connections and Signals Overview](#) on page 5 for an overview of the **SASA** function block's connections and signals.

Inputs

SASA Function Block Inputs

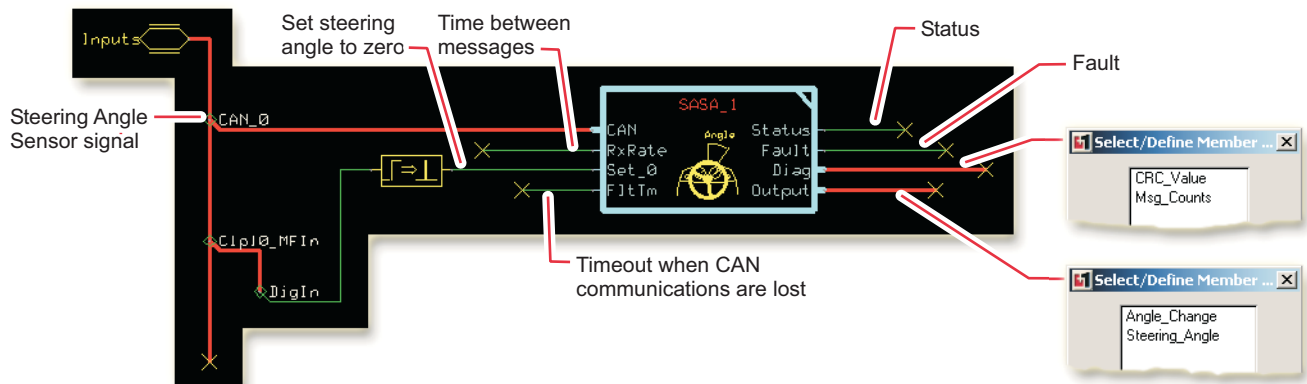
Input	Type	Range	Description
CAN	—	—	The CAN bus in the GUIDE template reports the output of a Sauer-Danfoss Steering Angle Sensor. Route a bus from the GUIDE template's CAN input to this function block's CAN input.
RxRate	U8	5 to 20	The RxRate (Prescribed Rate) signal specifies the frequency that messages are received from the angle sensor. There is the option of specifying once every 5, 10, or 20 ms.
Set_0	Bool	—	The Set_0 (Set-to-zero) signal specifies that the current steering angle is to now be set at 0 degrees. A set-to-zero command is transmitted to the sensor during an F to T transition of Set_0 . T = 0°.
FltTm	—	LoopTime to 65535	The FltTm (Fault Time) signal specifies how long to wait before the CAN bus signal is considered lost and a fault is declared.

Outputs

SASA Function Block Outputs

Output	Type	Range	Description
Status	U16	---	The Status signal reports the function block's status conditions. The Status signal does not use a standard bitwise scheme. For more information about status logic, see Status and Fault Logic on page 6.
Fault	U16	---	The Fault signal reports the function block's fault conditions. The Fault signal does not use a standard bitwise scheme. For more information about fault logic, see Status and Fault Logic on page 6.
Diag	Bus	---	Use these signals for troubleshooting. The Diag (Diagnostic) bus contains the CRC_Value (Cyclic Redundancy Check Value) and the Msg_Counts (Message Counts) signals.
CRC_Value	U16	0-65535	CRC_Value is a checksum value that is received with the CAN message from the sensor. The value is used inside the block to determine if valid data is received.
Msg_Counts	U8	0-255	Msg_Counts is a fault-detection value. Every message from the sensor is given a running number that is increased by 1 every time a message is sent. Used to determine if messages have been lost, and how many have been lost.
Output	Bus	---	The Output bus contains the Angle Change and Steering Angle signals:
Angle Change	S32	-35991 to 35991	The angle between two CAN measurements. 1° = 100
Steering Angle	U16	0 to 35991	The absolute angle relative to the 0-index point. 1° = 100

Connections and Signals Overview



Status and Fault Logic

The **SASA** function block does not use standard status and fault codes.

The status codes indicate the calibration state of the function block.

Status Logic

Status	Bit*	Reported While
Program Pending	1	The SASA is writing a parameter to memory.

*Position of set bit in a 16 bit fault status code. Bit 1 is the least significant bit.

Fault Logic

Fault	Cause	Bit*	Response	Delay [†]	Latch [‡]	Correction
CRC error	A CRC_Value checksum value from the CAN message indicates that an error occurred during the transmission of that message.	1	Data freezes	No	No	There is a physical layer problem. Ensure the CAN bus integrity.
Count error	When comparing the number of messages received with a Msg_Counts fault-detection value, it was found that two or more messages in a row had not been received.	2				Check that the controller's OS.ExecTime is less than RxRate . (OS.ExecTime is a global parameter on all devices.)
Timeout on CAN	The delay in receiving CAN signals exceeds the FltTim setting.	3				There is a physical layer problem. Ensure the CAN bus integrity.
Programming error		4	Old settings are used			Check that the correct RxRate is applied.

*Position of set bit in a 16 bit fault code. Bit 1 is the least significant bit.



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