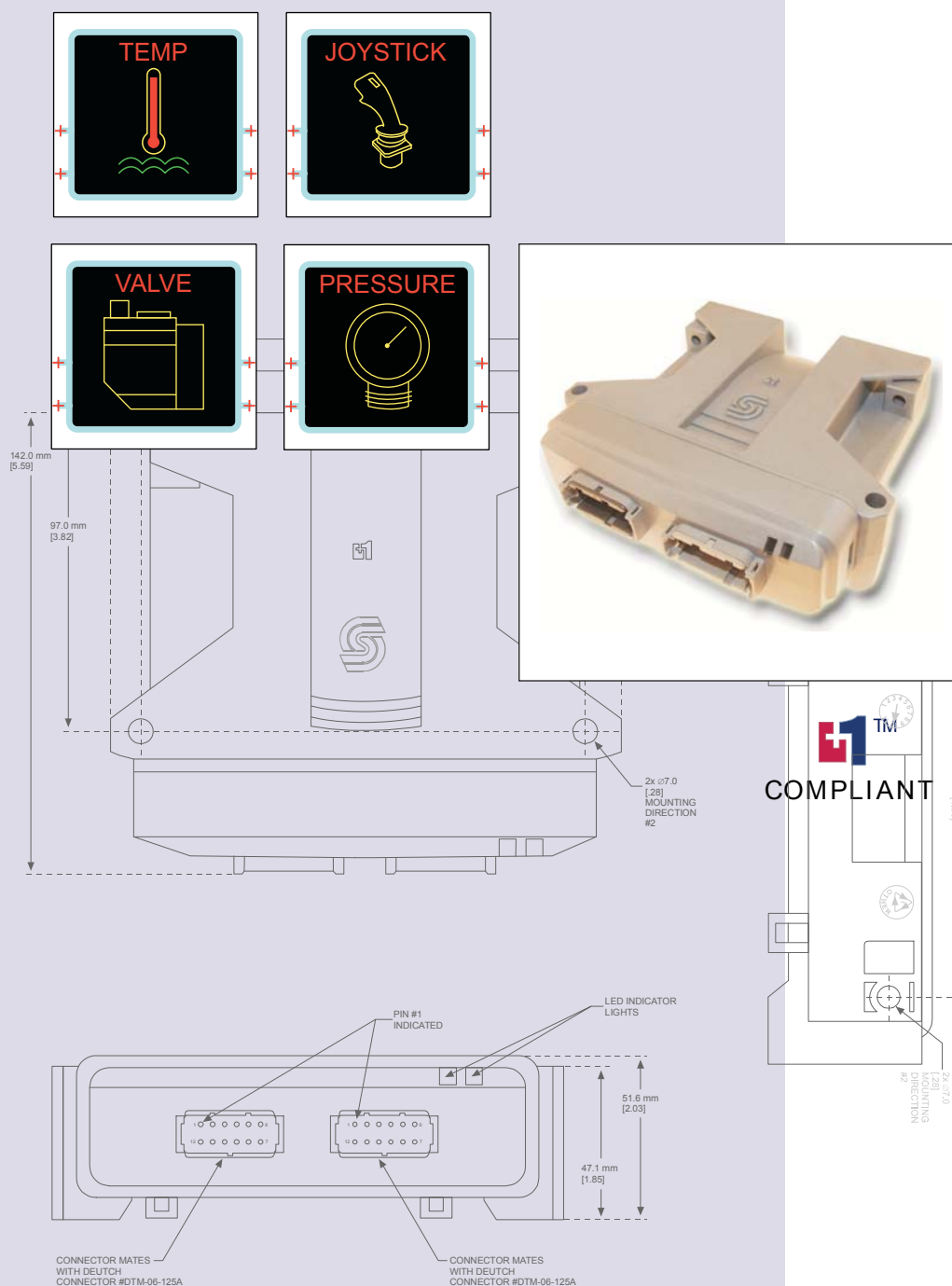


## PLUS+1 Compliant SASA Function Block User Manual



## 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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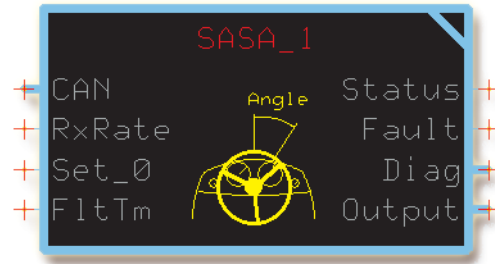
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## Overview

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

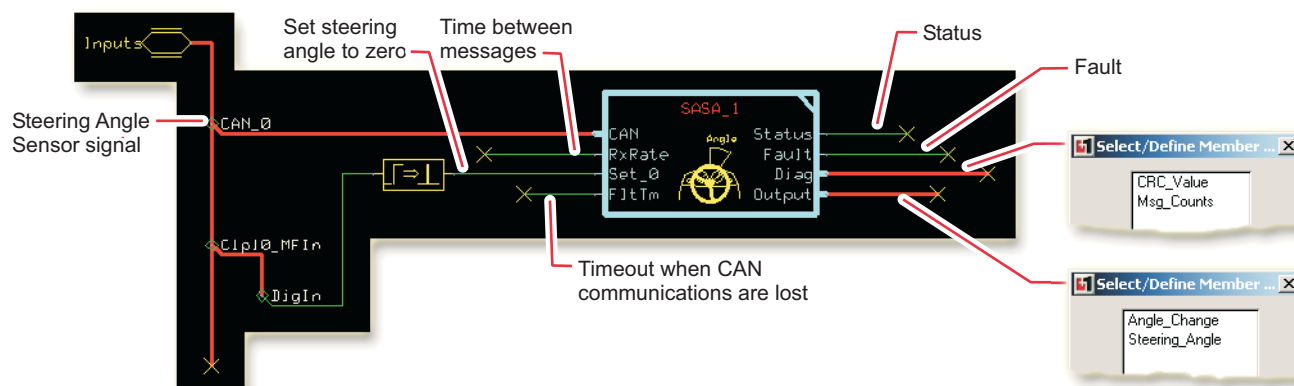
Input	Type	Range	Description
<b>CAN</b>	—	—	The <b>CAN</b> bus in the GUIDE template reports the output of a Sauer-Danfoss Steering Angle Sensor. Route a bus from the GUIDE template's <b>CAN</b> input to this function block's <b>CAN</b> input.
<b>RxRate</b>	U8	5 to 20	The <b>RxRate</b> (Prescribed Rate) 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.
<b>Set_0</b>	Bool	—	The <b>Set_0</b> (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 <b>Set_0</b> . T = 0°.
<b>FltTm</b>	—	LoopTime to 65535	The <b>FltTm</b> (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
<b>Status</b>	U16	—	The <b>Status</b> signal reports the function block's status conditions. The <b>Status</b> signal does not use a standard bitwise scheme. For more information about status logic, see <a href="#">Status and Fault Logic</a> on page 6.
<b>Fault</b>	U16	—	The <b>Fault</b> signal reports the function block's fault conditions. The <b>Fault</b> signal does not use a standard bitwise scheme. For more information about fault logic, see <a href="#">Status and Fault Logic</a> on page 6.
<b>Diag</b>	Bus	—	Use these signals for troubleshooting. The <b>Diag</b> (Diagnostic) bus contains the <b>CRC_Value</b> (Cyclic Redundancy Check Value) and the <b>Msg_Counts</b> (Message Counts) signals.
<b>CRC_Value</b>	U16	0-65535	<b>CRC_Value</b> is a checksum value that is received with the <b>CAN</b> message from the sensor. The value is used inside the block to determine if valid data is received.
<b>Msg_Counts</b>	U8	0-255	<b>Msg_Counts</b> 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.
<b>Output</b>	Bus	—	The <b>Output</b> bus contains the <b>Angle Change</b> and <b>Steering Angle</b> signals:
<b>Angle Change</b>	S32	–35991 to 35991	The angle between two CAN measurements. 1° = 100
<b>Steering Angle</b>	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 <b>SASA</b> 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 <sup>†</sup>	Latch <sup>†</sup>	Correction
CRC error	A <b>CRC_Value</b> 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 <b>Msg_Counts</b> fault-detection value, it was found that two or more messages in a row had not been received.	2				Check that the controller's <b>OS.ExecTime</b> is less than <b>RxRate</b> . ( <b>OS.ExecTime</b> is a global parameter on all devices.)
Timeout on CAN	The delay in receiving CAN signals exceeds the <b>FltTim</b> setting.	3				There is a physical layer problem. Ensure the CAN bus integrity.
Programming error		4	Old settings are used			Check that the correct <b>RxRate</b> is applied.

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



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