Application Note

FESTO

Replacement of MS6-SV-1/2-E-ASIS-AG by MS6-SV-1/2-E-10V24-AD1

How to replace MS6-SV-E-ASIS with MS6-SV-E-...

MS6-SV-1/2-E-ASIS-AG;
MS6-SV-1/2-E-ASIS-AG

Title .....Replacement of MS6-SV-1/2-E-ASIS-... by MS6-SV-1/2-E-10V24-AD1
Version 1.10
Document no. 100178
Original .....en
Author .....Festo

Last saved 30.11.2018

Copyright Notice

Legal Notice

Internet: http://www.festo.com
E-Mail: service_international@festo.com

Table of contents

Index of revisions

Author:		Festo AG & Co.KG		
Name of manual:		Soft-start and exhaust valve. Replacement of MS6-SV-1/2-E-ASIS-AG by MS6-SV-1/2-E-10V24-AD1		
Filename:		MS6-SV-1_2-E-ASIS-AG_en.docx		
Consec. No.	Description	Index of revisions	Author	Date of amendment
1	Creation of the document	1	ADD	23.10.2018

Translation of original instruction.

1 Description

1.1 Intended Use

This document describes the replacement of an MS6-SV-1/2-E-ASIS-AG by an MS6-SV-...-E-10V24... in conjunction with the AS-i Safety output module BWU2045 from Bihl + Wiedemann. The safety functions described in the operating instructions of the MS6-SV-...-E-10V24... can be implemented. In the application software of the functional control and the application software of the Safety Relay, adaptations of the software are probably required which are not included in this document. These software modifications must be created and checked in relation to the specific application.

Notes:

- If the application software of the safety relay is changed, verification and validation of the changes in the machine is required.

- The operating instructions for the devices used must be observed.

1.2 Reasonably Foreseeable Misuse

This application note is not realized with the described components.
It is used to implement safety functions that are not specified in the MS6-SV-...-E-10V24... operating instructions.
For the replacement of the MS6-SV-1/2-E-ASIS-AG no sufficient risk assessment, verification and validation is done. There is no safety concept for the machine.
The suitability of this application note for the application is not verified.

1.3 Environment (Electromagnetic Compatibility, EMC)

Industry.

This application note applies to machines which are assumed to be connected directly to a power supply network which is powered by its own high-voltage or medium-voltage distribution transformer intended for the power supply of a factory or similar installation.

The environments covered by this application note are industrial environments within buildings. Industrial environments are characterized by the presence of one of the following conditions:

- Industrial, scientific and medical equipment is available;
- Large inductive or capacitive loads are switched frequently;
- The current intensities and the associated magnetic field strengths are high.

1.4 User Groups

This document is only suitable for persons with sufficient expertise for machine safety based on EN ISO 12100 and EN ISO 13849.

In addition, the following qualifications are required in the project team:

- Specialist in pneumatics
- Specialist in electrical engineering
- Specialist for the programming of control systems and safety switching devices

A specialist is a person who, based on his professional training, knowledge and experience, as well as knowledge of the relevant standards, can assess the work carried out and recognize possible dangers. In order to assess the professional training, a multi-year activity can also be used in the work area concerned. [According DIN VDE 1000-10:2009-01]

1.5 Task

Due to the planned phase-out of the MS6-SV-...-E-ASIS-... an alternative solution with the MS6-SV-...-E-10V24-AD1 and the AS-i Safety output module BWU2045 from Bihl+Wiedemann is proposed. The circuits described here and the procedure described are recommendations which do not exclude other possibilities.

1.6 Limitations

By using the AS-i Safety output module BWU2045 not all functionalities of the MS6-SV-...ASIS-... can be reproduced.

The following data can no longer be accessed:

- Feedback and diagnostic signals (cyclical digital data)

Inputs				Description
n.c.	n.c.	DI1	DI0	
		0	0	Pneumatic status exhaust
		0	1	Pneumatic status pressurize
		1	0	Minor error; pneumatic limits exceeded or fallen below
		1	1	Major error; defect uncovered in the hardware/software

- Input and output pressure via the ASI bus (cyclical analogue values)
  0...1200 for 0 bar to 12 bar at address A15...A0

1.7 Proposal for alternative feedback and diagnostic signals

If feedback and diagnostic signals are required, the following options are available:

- For feedback and diagnostic signals (cyclic digital data)

  It is recommended to configure the MS6-SV-1/2-E-10V24-... with a pressure sensor AD1. The pressure sensor AD1 and the feedback contact 3/4 can be used to distinguish between "pressurized" and "error".

Status of valve	Pressure sensor	Signal contact 3/4
Activation for pressurisation by means of EN1 and EN2	Closed	Open
Activation for exhaust by means of EN1 and EN2	Open	Closed
Malfunction (red LED flashing)	Open	Open

Table 1.6: Status of valve

- For inlet and outlet pressure via the ASI bus (cyclic analog values)

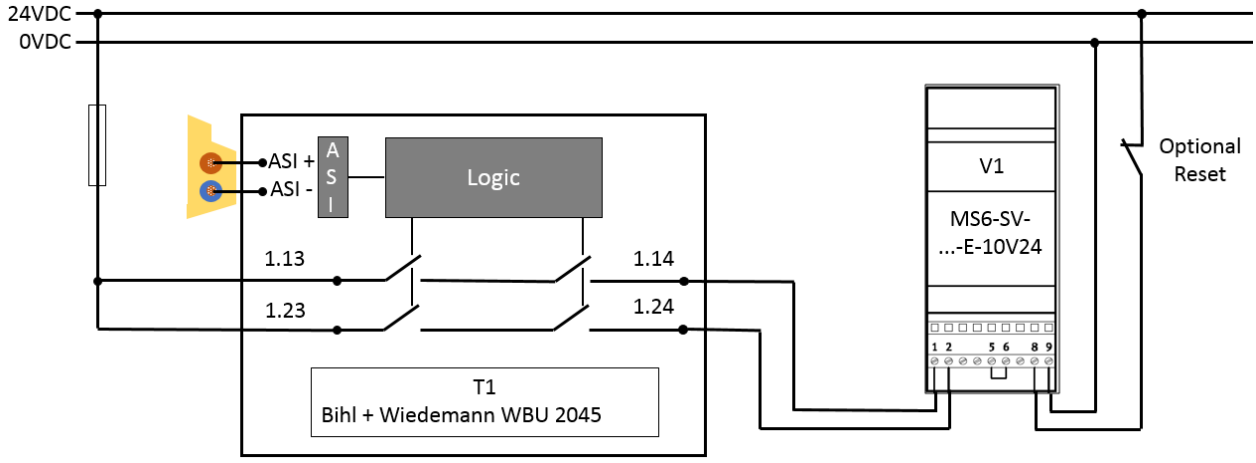
  It is recommended to configure the MS6-SV-1/2-E-10V24-... with a pressure sensor AD3. If the pressure sensor AD3 is used, the analogue signal (4-20mA) can additionally supply the pressure value of P2.

This digital data or analog values can be transmitted back via a suitable ASi input module. If the signals are only used as diagnostic signals for monitoring the safety function, a standard ASi input module (no safety-related characteristic values) is normally sufficient if the switching times of the MS6-SV are monitored by the safety PLC.

1.8 Electrical circuit with cable plug NECA-S1G9-P9-MP1

The multi-pin plug socket NECA-S1G9-P9-MP1 expects 2 signals with +24V DC at pins 1 and 2, these can be static or dynamic.

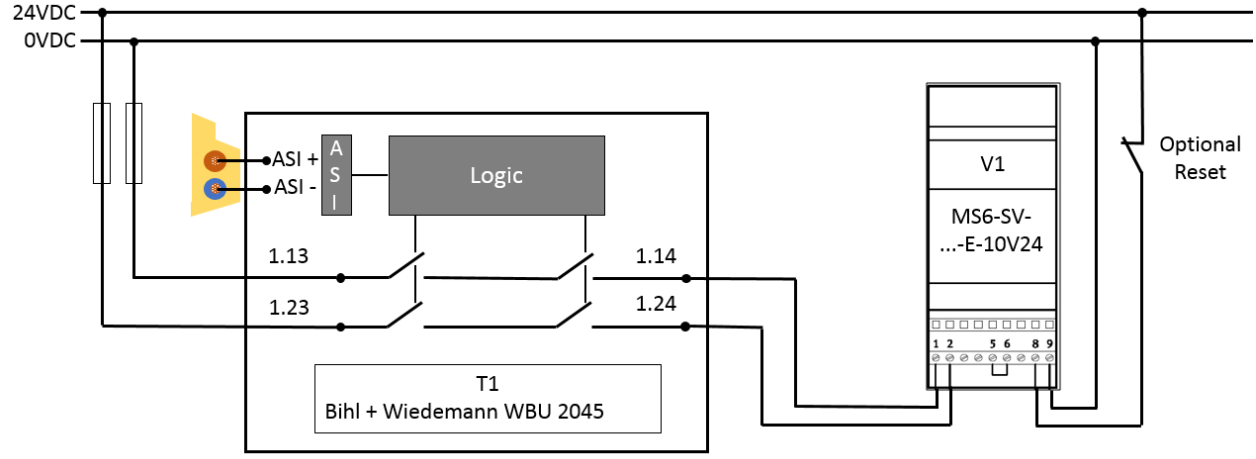
For a more detailed description of the signals, please see the MS6-SV-...-E-10V24... operating instructions.



1.9 Electrical circuit with cable plug NECA-S1G9-P9-MP3 / NECA-S1G9-P9-MP5

The multi-pin plug socket NECA-S1G9-P9-MP3 / NECA-S1G9-P9-MP5 expects 1 signal with 0V DC at pin 1 and +24V DC at pin 2, these can be static or dynamic.

For a more detailed description of the signals, please see the MS6-SV-...-E-10V24... operating instructions.



1.10 Hardware Components

Component		Order No. Type	Part Number / Remarks	Qty.	Mssr.
T1	Safety Switching Device	BWU 2045	BWU 2045	1	Bihl + Wiedemann
V1	Valve	MS6-SV-1/2-E-..	MS6-SV-1/2-E-10V24-AD1 562580	1	Festo