Installation Instructions

Original Instructions

Allen-Bradley

Guardmaster®

Sipha Control Units

Catalog Numbers 440N-S32013, 440N-S32021

Summary of Changes

This publication contains the following new or updated information. This list includes substantive updates only and is not intended to reflect all changes.

Topic	Page
Updated Specifications table	1
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Introduction

Suitably competent personnel must install the Sipha™ control units in accordance with the following steps and specifications. Adherence to the recommended maintenance instructions forms part of the warranty.

WARNING: Do not defeat, tamper, remove, or bypass this unit. Severe injury to personnel could result.

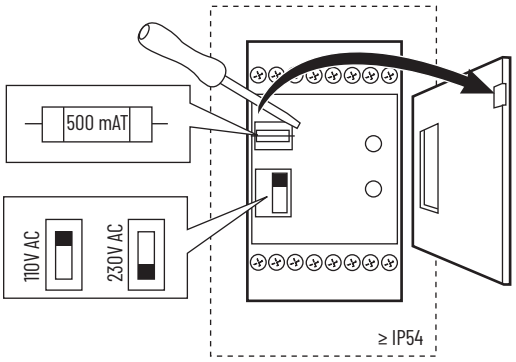
Specifications

Attribute		Cat. No. 440N-S32013, 440N-S32021
Designation/utilization category		• B300/AC-15 (Ue/Ie) 250V/4 A • P300/DC-15 (Ue/Ie) 30V/2 A
Power supply	Sipha 1	24V DC ±10%
	Sipha 2	24V DC ±10% or 110/230V AC selectable +10/-15%
Safety relay output	Sipha 1	1 N.O. immediate
	Sipha 2	2 N.O. immediate
Auxiliary output	Sipha 1	1 N.C. Phot MOS (not for safety use) ON resistance typ. 36 Ω
	Sipha 2	1 N.C. (not for safety use)
Drop out time, max		25 ms
Operating temperature		-10...+55 °C (14...131 °F)
Ingress protection rating	Control unit	IP40 DIN 0470
	Terminal isolation	IP20 DIN 0470
	Required enclosure	IP54, minimum
Mechanical life		10×10^6
Pollution degree		PD2
Overvoltage Category (OVC)		III
Rated impulse withstand voltage		4 kV

IMPORTANT The safety contacts of these products are described as normally closed (N.C.), that is, with the guard closed, the actuator in place (where relevant), and the machine able to be started.

Sipha Control Unit Settings

Figure 1 - Sipha 2 Control Unit



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Approximate Dimensions

Figure 2 - Sipha 1 Control Unit [mm (in.)]

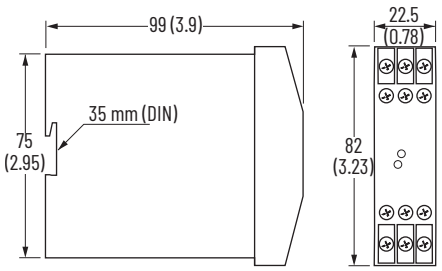
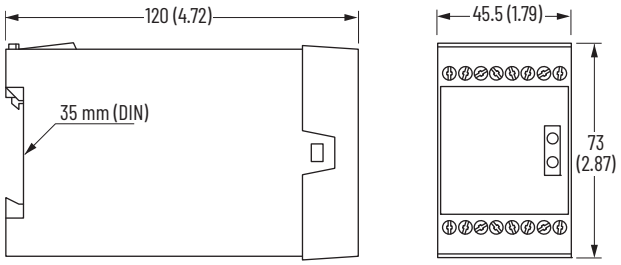


Figure 3 - Sipha 2 Control Unit [mm (in.)]



Application Wiring Diagrams

Figure 4 - Sipha 1 Control Unit

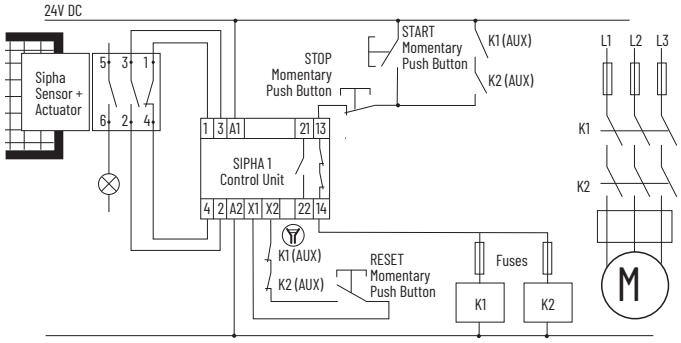
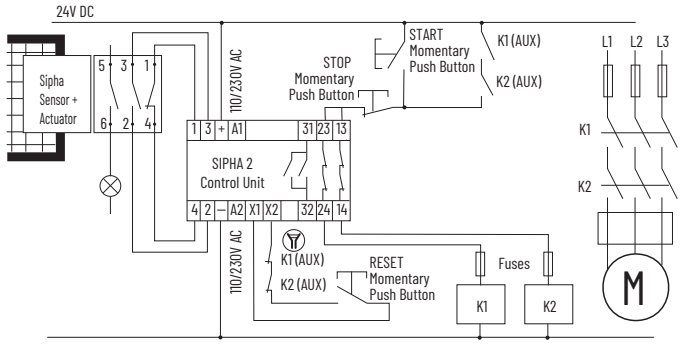


Figure 5 - Sipha 2 Control Unit



Whenever the interlocked guard door is open, check that the machine is isolated and stopped.

IMPORTANT	After installation and commissioning, you must coat the actuator, switch, and switch lid mounting screws with tamper-evident varnish or a similar compound.

Installation



Sipha 1 Control Unit



Sipha 2 Control Unit

Each Sipha control unit requires four Sipha switch inputs to operate properly. The Sipha 1 and Sipha 2 control units accommodate one or a series connection of safety switches that contain both a N.O. and N.C. contact. Installation of all coded non-contact proximity switches and associated control units must be in accordance with a risk assessment for the individual application.

After installation, always check each switch function; open and close each guard individually and verify that the switch and the Sipha control unit function as expected. Confirm that the machine stops and cannot restart when each switch is open.

The coded non-contact proximity switches in combination with a control unit form a PDDB (proximity device with defined behavior under fault conditions) in accordance with EN 60947-5-3 and comply with the requirements of Category 4, PLe, and SIL 3 in accordance with EN ISO 13849-1 and EN 62061/EN 61508.

In PLe applications with Category 3 or Category 4 according to IEC 13849-1 or SIL 3 according to IEC 62061 and ISO 14119 with HFT (hardware fault tolerance) = 1 in which operational processes do not confirm that the safety function is demanded regularly (≥ 1/month), take organizational measures to verify that the safety function is tested manually at least once per month.

Maintenance

At least every month, isolate all power before doing the following:

- Check the actuator to sensor target alignment.
- Check the terminal connections.
- Check the wiring for signs of damage.
- Check that the unit locks out when one fault occurs by placing a link across control unit terminals 1 and 4.
- Verify that the interlocked guard door is closed.
- Reinstate power to the Sipha control unit only, press the Reset button (if fitted), and open the guard door. Check that the unit locks out.
- Remove the link, disconnect the yellow wire at terminal two, and repeat the test.
- If there are multiple sensors that are connected to the control unit, repeat these tests for each sensor in turn.
- During tests, check that the status indicators operate correctly. If the system operates correctly during tests, reinstate the connections and power.

IMPORTANT	Before allowing normal machine operation, check that the machine stops when the guard door is open.

Repair

If there is any malfunction or damage, do not attempt to repair the unit. Replace the unit before machine operation is allowed.

IMPORTANT	Do not dismantle the unit.

UL508 Information

When used in elevated ambient temperatures, the temperature rating of field wiring cannot be less than ambient.

IMPORTANT The following actuators and sensors are intended for use on magnetically actuated safety interlock switches (Cat. No. 440N-S32021, 440N-S32013): 440N-S32014, 440N-S32016,440N-S32022, 440N-S32032, 440N-S32037, 440N-S32036, 440N-S32015, 440N-S32017, 440N-S32023, 440N-S32033, 440N-S32038, 440N-S32039, 440N-S32101, 440N-S32024, 440N-S32047, 440N-S32055, 440N-S32056, 440N-S32046, 440N-S32053, 440N-S32054).

Attribute	Cat. No. 440N-S32013, 440N-S32021
Electrical rating	B300
Current, max	• 250V AC/4 A • 30V DC/2 A

IMPORTANT Use copper conductors only. Use polymeric conduit only. Use one conduit entrance for field connections.

Power Supply Considerations

- Sipha 1 is operated exclusively with 24V DC.
- Sipha 2 can be operated with 24V DC or with 115V AC/230V AC.

When the devices are supplied from SELV/PELV circuits (here: 24V DC SELV/PELV):

- Output contacts may only be connected to SELV/PELV circuits as well.

When a device is not supplied from SELV/PELV circuits (for Sipha 2, for example 24V DC, 115V AC, or 230V AC that are not SELV/PELV):

- Output contacts must not be used in SELV/PELV circuits.
- Insulation of the wiring and of all other connected components must be rated for the selected supply voltage.

Safety Specifications

Table 1 - EN ISO 13849-1

Parameter	Sipha 1 Control Unit	Sipha 2 Control Unit
MTTFd	452 a (high)	5250 a (high)
DCavg	99% (high)	99% (high)
CCF	65	80

Table 2 - EN 62061

Parameter	Sipha 1 Control Unit	Sipha 2 Control Unit
PFHd	5.50E-09	4.5 E-09
SIL CL	3	3

The products comply with the requirements of Cat. 4/PLe according to EN ISO 13849-1 and SIL 3 according to IEC 62061/IEC 61508 and can be used in safety-related applications up to these safety levels.

Declaration of Conformity

CE Conformity

Rockwell Automation declares that the products that are shown in this document conform with the Essential Health and Safety Requirements (EHSRs) of the European Machinery Directive (2006/42/EC), the relevant requirements of the Electromagnetic Compatibility Directive 2014/30/EU.

For a comprehensive CE certificate, visit rok.auto/certifications.

UKCA Conformity

Rockwell Automation declares that the products that are shown in this document are in compliance with Supply of Machinery (Safety) Regulations (2008 No. 1597), Electromagnetic Compatibility Regulations (2016 No. 1091).

For a comprehensive UKCA certificate, visit rok.auto/certifications.

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Waste Electrical and Electronic Equipment (WEEE)



At the end of life, this equipment should be collected separately from any unsorted municipal waste.

Rockwell Automation maintains current product environmental compliance information on its website at rok.auto/pec.

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