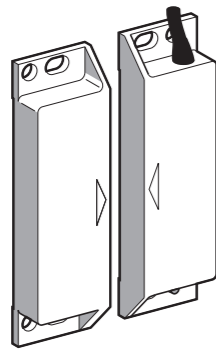


# INSTRUCTION SHEET

## Coded Magnetic Switches HS7A-DMP

HS9Z-ZP1 HS7A-DMP



Confirm that the delivered product is what you have ordered. Read this instruction sheet to make sure of correct operation. Make sure that the instruction sheet is kept by the end user.

The products have been designed in accordance with the standards in effect : IEC 60947-5-1, EN 292, EN 60204-1 to ensure the safety of machine operators and machine operating reliability, and have obtained the UL/CSA certifications.

### SAFETY NOTE

#### CAUTION

The use of the safety relay modules is required for the monitoring of the coded magnetic safety switches.

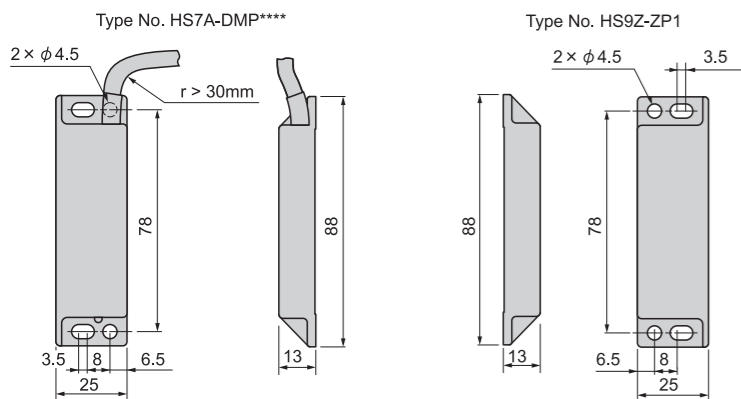
When correctly installed and connected to the HR1S safety relay modules they produce a category 4 control circuit per EN ISO 13849-1 (2 redundant contacts monitored by one HR1S safety relay module or FS series safety controller. See user's manual for wiring with safety controller).

Use the safety switches for an interlocking device in compliance with laws and regulations of the country in which it is being used.

### 1 Specifications

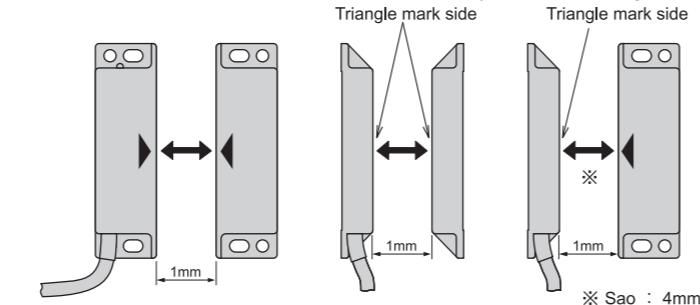
|  |  |
|--|--|
| Conforming to standards                        | IEC / EN 60947-5-1<br>EN ISO / ISO 14119<br>UL 508, CSA C22.2 No.14  |
| Interlocking device Type / the level of coded  | Type 4 interlocking device<br>/ low level coded actuator (EN ISO 14119)  |
| Ambient air temperature                        | Operation : -13° F to 185° F (-25°C+85°C) (no freezing)<br>Storage : -40° F to 185° F (-40°C+85°C) (no freezing) |
| Vibration resistance                           | 10 gn (10-150 Hz) conforming to IEC 60068-2-6  |
| Shock resistance                               | 30 gn (11 ms) conforming to IEC 60068-2-7  |
| Protection against electric shock              | Class II as per IEC 60536  |
| Degree of protection                           | IP67   |
| Degree of pollution                            | 3, conforming to IEC / EN 60947-5-1  |
| Rated operating characteristics                | Ue = 24VDC<br>Ie = 100 mA  |
| Protection (using without safety relay module) | 500 mA gG (gL) cartridge fuse<br>(use type CC in the United States)  |
| Repeat accuracy                                | ≤10%   |
| Hysteresis                                     | ≤20%   |
| Frequency of operating cycle                   | 150 Hz   |
| Drop out voltage                               | I=10mA 0,1V without LED; 2,4V with LED<br>I=100mA 1V without LED; 4,2V with LED                                  |
| Functional switches                            | Closing - Opening  |
| Cable connection                               | By cable 6 x AWG 23 (0,25mm <sup>2</sup> )<br>length 78.74 in, 196.85 in<br>(2m, 5m), depending on model         |

### 2 Dimensions (mm)



### 3 Operation

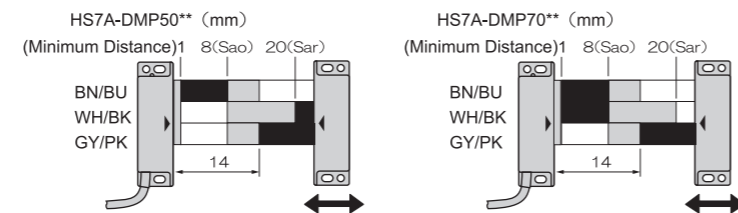
Functional directions - Minimum distance between the safety switch and the magnet



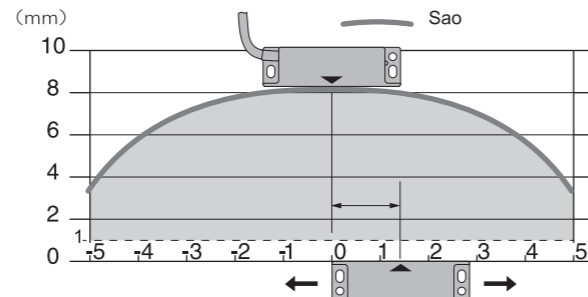
Contact status:  
 -Contact closed (1)  
 -Contact open (0)  
 -Transient state

Sao : Assured Operation Distance  
 Sar : Assured Release Distance

#### Operation chart

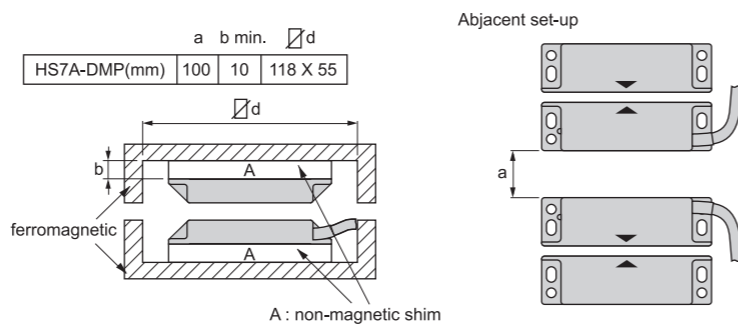


#### Sensing area

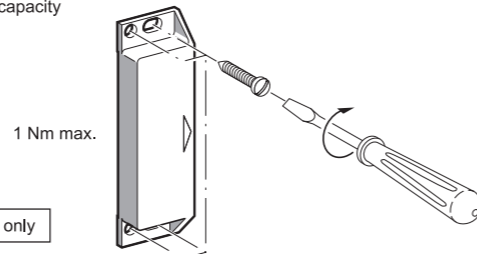


### 4 Mounting

Required arrangement with ferromagnetic mounting support

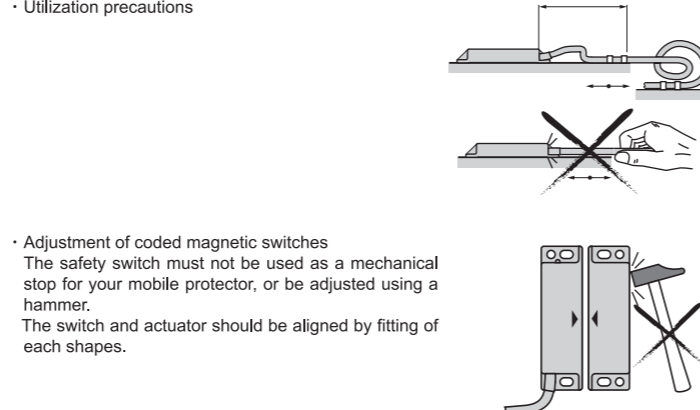


Tightening torque, Tightening capacity



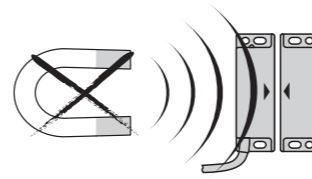
Use non-magnetic screws only

Utilization precautions



### CAUTION

≥ 0.3mT



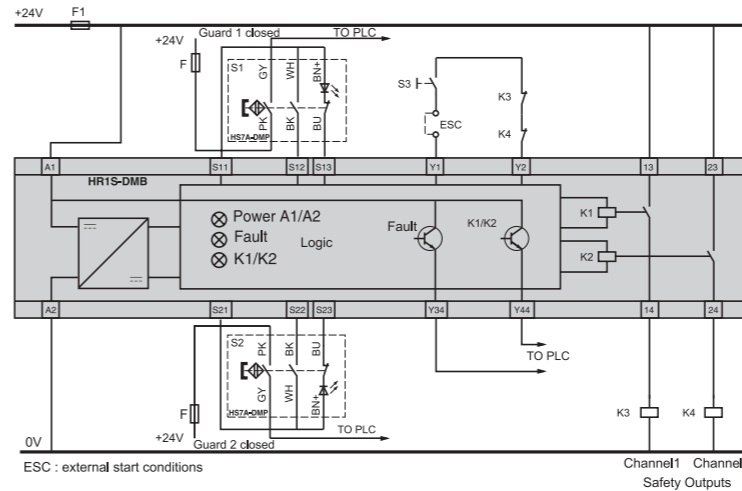
### 5 Wiring diagram

#### WARNING

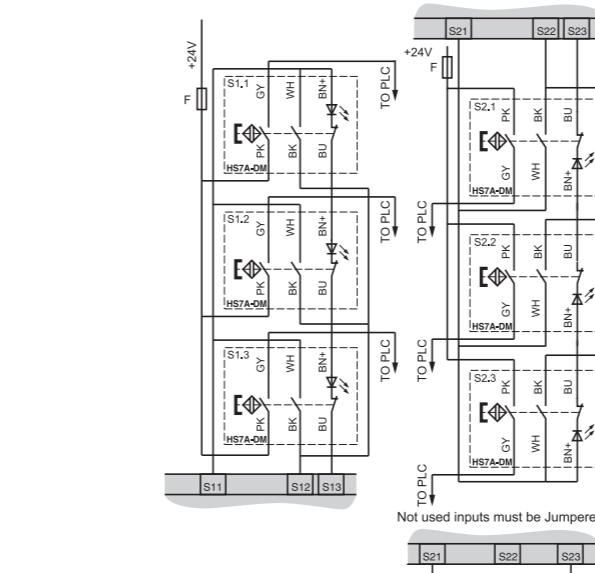
HAZARDOUS VOLTAGE  
 Disconnect all power before working on equipment.  
 Electric shock will result in death or serious injury.

\* Illustration of contacts with magnet present

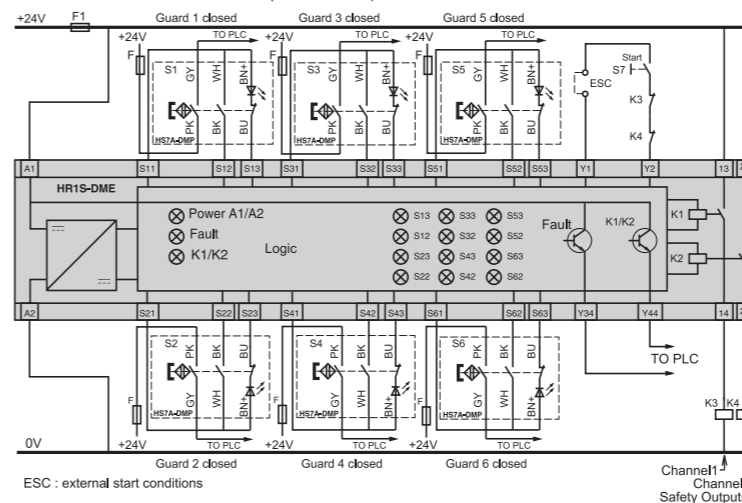
Cat. 4 / PL=e (EN ISO 13849-1) / SIL3  
 - HR1S-DMB + HS7A-DMP50\*\* (NC+NC+NO) + HS9Z-ZP1



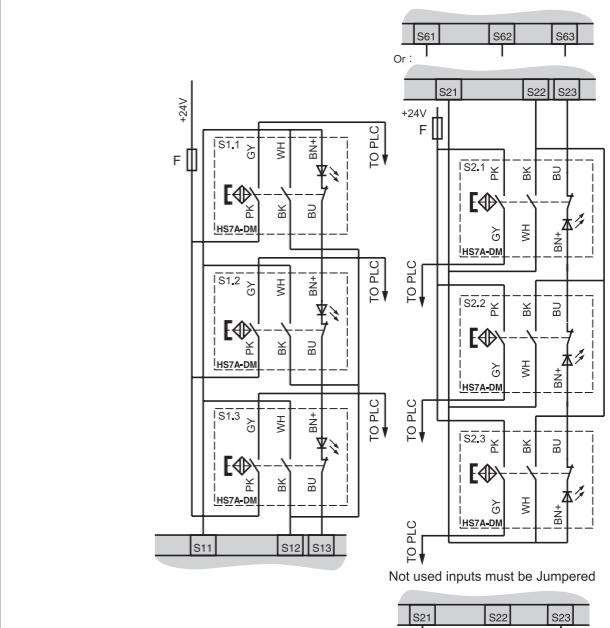
Cat. 3 / PL=d (EN ISO 13849-1) / SIL2 - HR1S-DME



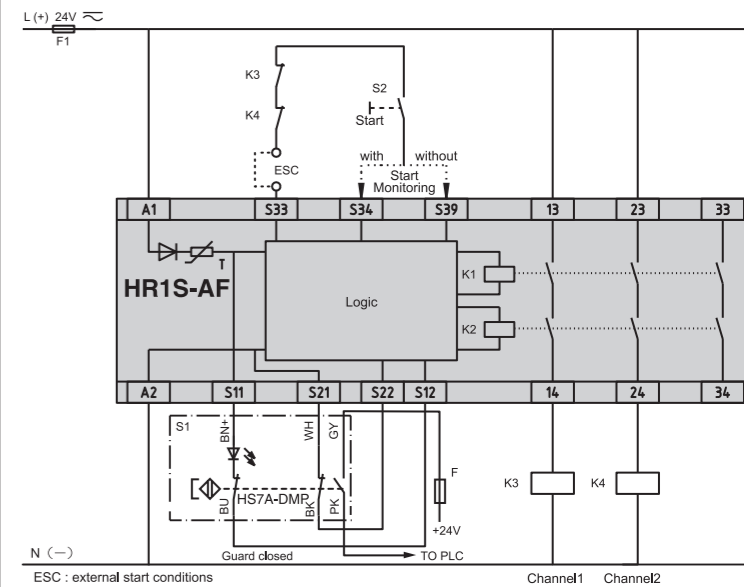
Cat. 4 / PL=e (EN ISO 13849-1) / SIL3  
 - HR1S-DME + HS7A-DMP50\*\* (NC+NC+NO) + HS9Z-ZP1



Cat. 3 / PL=d (EN ISO 13849-1) / SIL2 - HR1S-DME



Cat. 4 / PL=e (EN ISO 13849-1) / SIL3  
 - HR1S-AF + HS7A-DMP70\*\* (NO+NO+NC) + HS9Z-ZP1



Connectable HS7A-DMP per Input.

|              | HS7A-DMP50** |          | HS7A-DMP70** |          |
|--------------|--------------|----------|--------------|----------|
|              | without LED  | with LED | without LED  | with LED |
| HR1S-DMB/DME | 6            | 3        | 6            | 1        |
| HR1S-AF      |              |          | 6            | 1        |

#### Type

| Type No.     | LED     | Cable | Contact | Type No.     | LED     | Cable | Contact |
|--------------|---------|-------|---------|--------------|---------|-------|---------|
| HS7A-DMP5002 | without |       | NO      | HS7A-DMP7002 | without |       | NO      |
| HS7A-DMP5012 | with    | 2m    | NC      | HS7A-DMP7012 | with    | 2m    | +       |
| HS7A-DMP5005 | without |       | NC      | HS7A-DMP7005 | without | 5m    | NO      |
| HS7A-DMP5015 | with    | 5m    | NC      | HS7A-DMP7015 | with    | 5m    | NC      |

## IDEC CORPORATION

http://www.idec.com  
2015.9

#### DECLARATION OF CONFORMITY

We, IDEC CORPORATION 6-64, Nishimiyahara 2-chome Yodogawa-ku, Osaka 532-0004, Japan declare under our sole responsibility that the product:

Description: Non-contact Safety Switch

Series Name: HS7A Series

Model No.: HS7A-DMP50\*\* (\*\* = 02, 12, 05, or 15), HS7A-DMP70\*\* (\*\* = 02, 12, 05, or 15)

to which this declaration relates is in conformity with the EC Directive on the following

standard(s) or other normative document(s). In case of alteration of the product, not agreed

upon by us, this declaration will lose its validity.

Applicable EC Directive: Low Voltage Directive (2006/95/EC)

EC Directive of Electromagnetic Compatibility (2004/108/EC)

Machinery Directive (2006/42/EC)

Applicable Standard(s) : EN ISO 13849-1, EN ISO 14119, EN 60204-1, EN 62061, EN 60947-1, EN 60947-5-1

Authorized Representative in EU : IDEC ELEKTROTECHNIK GmbH Heselstuecken 8, 22453 Hamburg, Germany

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2/2

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