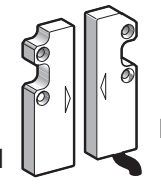


取扱説明書
非接触安全スイッチ
HS7A-DMC



HS9Z-ZC1 HS7A-DMC

この度は、IDEC製品をお買い上げいただき、ありがとうございます。ご注文の製品に間違いがないか確認のうえ、この取扱説明書の内容をよくお読みいただき、正しくご使用ください。

本製品は作業者の安全及び機械の動作信頼性を確保するため、IEC/EN60947-5-1、IEC/EN60204-1に準拠しており、UL/CSAの認証を取得しています。

安全上のご注意

警告
製品の意図しない動作

本製品を使用する際は、安全リレーモジュールまたはセーフティコントローラと組合わせてご使用ください。それらの製品なしでのご使用はできません。

これらの指示に従わない場合、死亡、重症、または物的損害を負う可能性があります。

注意
本製品を使用する際は、必ず安全リレーモジュールまたはセーフティコントローラを使用してください。

本製品は安全リレーモジュールまたはセーフティコントローラ※と組み合わせることにより、最大カテゴリ4/PL e (EN ISO 13849-1) まで対応可能です。

接続に関しては安全リレーモジュールまたはセーフティコントローラのユーザーズマニュアルや取扱説明書をご参照ください。

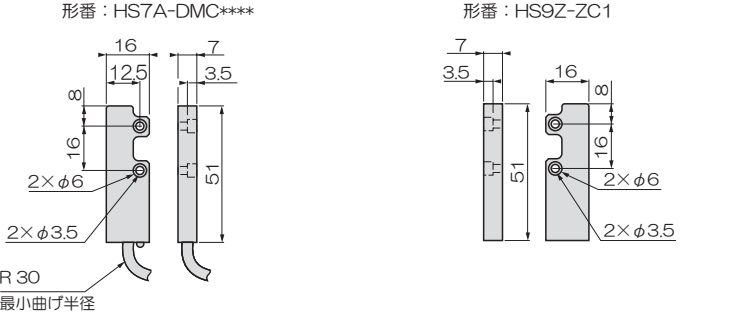
※当社製品ではHR5S形 (カテゴリ2/PL d)、HR6S形、FS1A形など。必ず専用アクチュエータ (HS9Z-ZC1) と組み合わせてご使用ください。

インターロック装置の設計に関しては、ご使用になる国の法規制に適合するようにご使用ください。

1 一般仕様

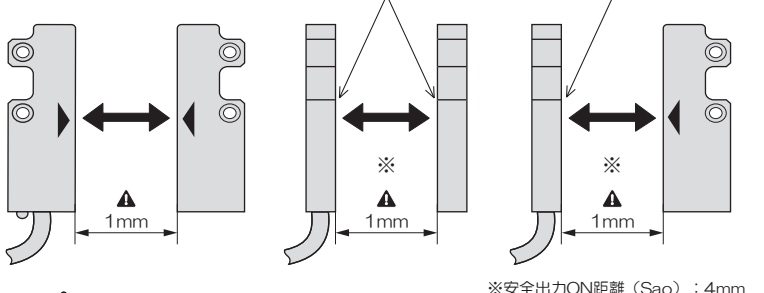
Table with 2 columns: Specification (適用規格, タイプ及びコード化レベル, etc.) and Value (IEC / EN 60947-5-1, Type4, etc.).

2 外形図 (mm)



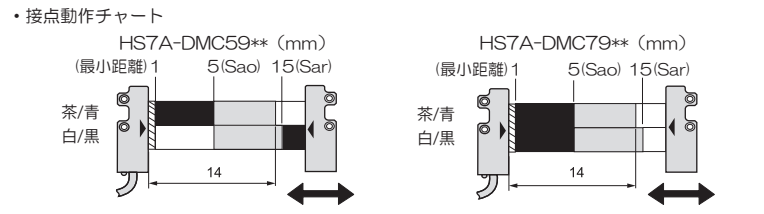
3 動作

動作方向 - スイッチ本体とアクチュエータとの間の最小距離

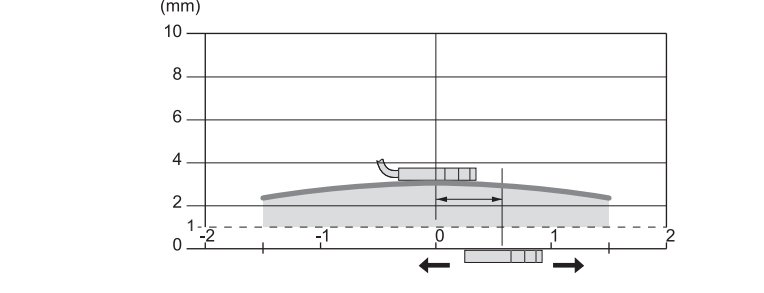
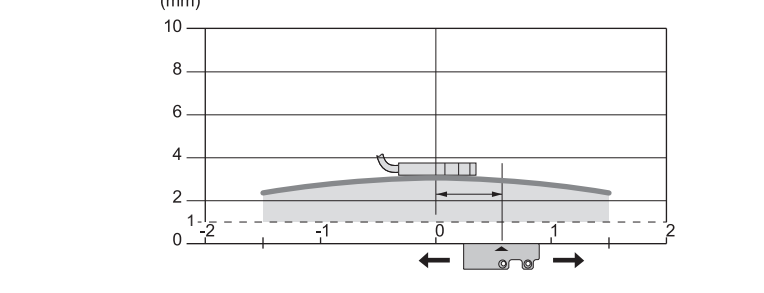
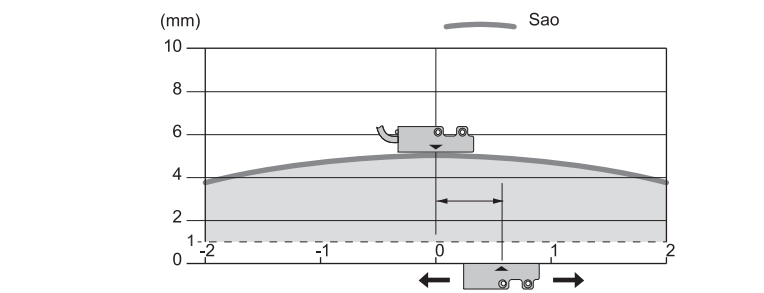


最小動作距離: 1mm
接点状態: 接点閉 (1), 接点開 (O), 不定領域

Sao: 安全出力ON時最小動作距離
Sar: 安全出力OFF時最大動作距離

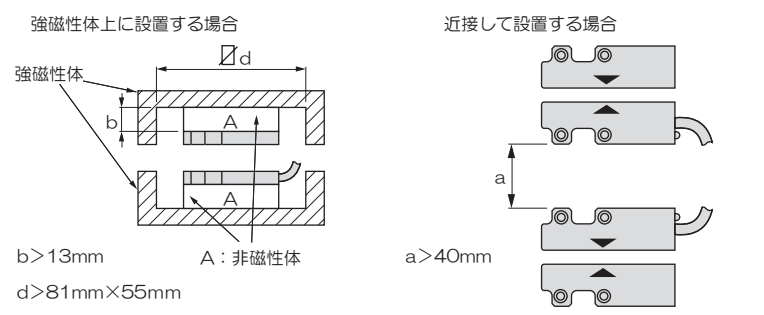


動作エリア: 安全出力ON領域



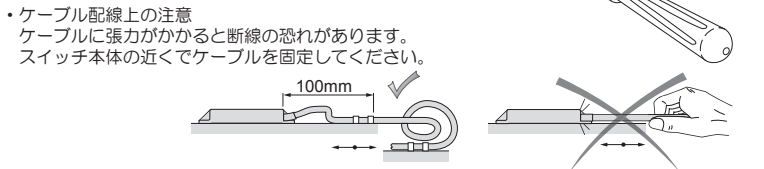
4 設置

設置上の注意



締め付けトルク: 1 Nm max.

非磁性ねじを使用すること



アクチュエータ設置上の注意
非接触安全スイッチを可動式ガードのストッパーとして使用しないでください。

注意
非接触安全スイッチを0.3mT以上の境界内で使用しないでください。

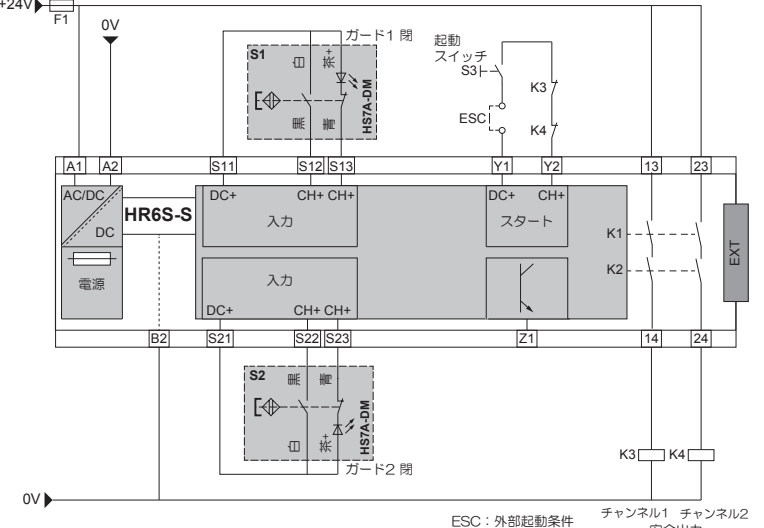
5 配線

警告
取付/取り外し、配線作業及び保守/点検は必ず電源を切って行ってください。

注意
物的損害のリスク
電源が入っているときは、非接触安全スイッチを取付/取り外しをしないでください。

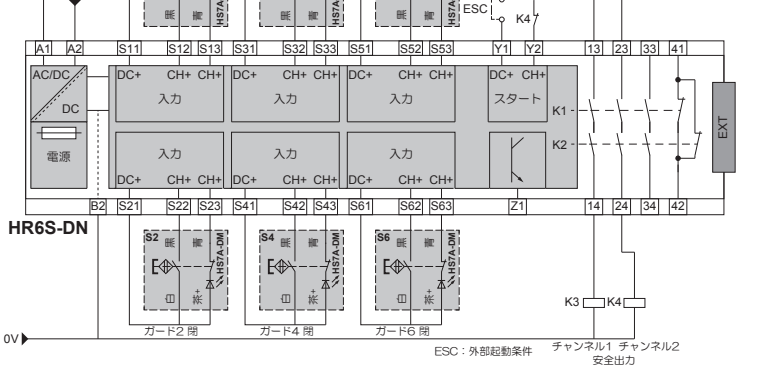
下記カテゴリ、PLおよびSILはあくまで例であり、実際の回路では実使用条件を確認の上、関連規格 (ISO 14119 など) を参照の上、お客様自身での評価をお願いします。

カテゴリ4、PL= e (EN ISO 13849-1) / SIL3 対応回路例
HR6S-S1* + HS7A-DMC59** (NC+NO) + HS9Z-ZC1

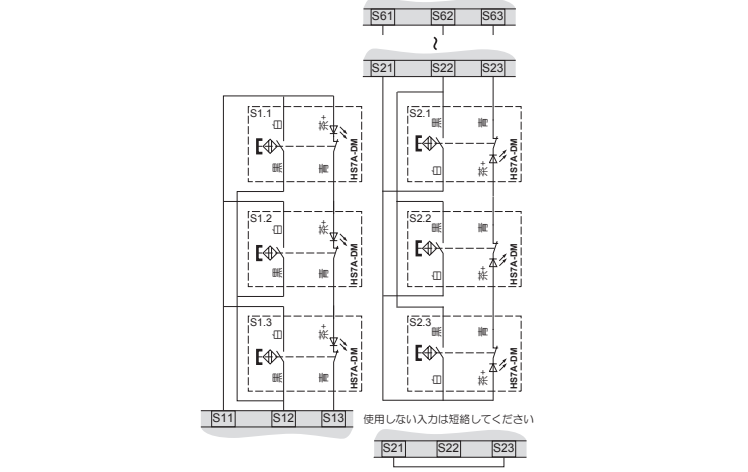


下記カテゴリ、PLおよびSILはあくまで例であり、実際の回路では実使用条件を確認の上、関連規格 (ISO 14119 など) を参照の上、お客様自身での評価をお願いします。

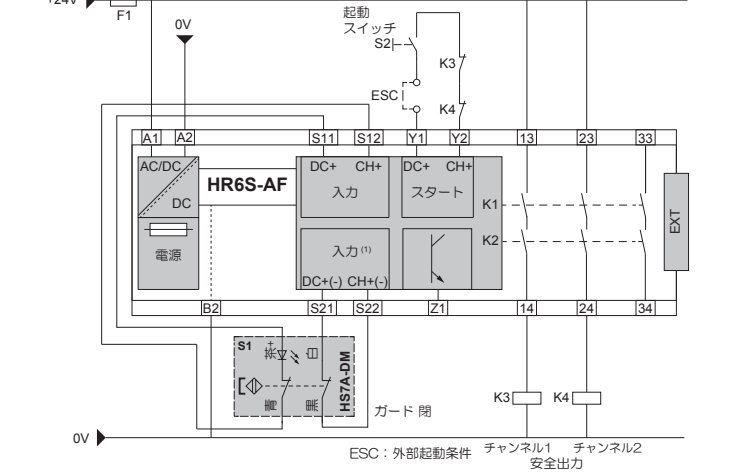
カテゴリ4、PL= e (EN ISO 13849-1) / SIL3 対応回路例
HR6S-DN1* + HS7A-DMC59** (NC+NO) + HS9Z-ZC1



下記カテゴリ、PLおよびSILはあくまで例であり、実際の回路では実使用条件を確認の上、関連規格 (ISO 14119 など) を参照の上、お客様自身での評価をお願いします。



下記カテゴリ、PLおよびSILはあくまで例であり、実際の回路では実使用条件を確認の上、関連規格 (ISO 14119 など) を参照の上、お客様自身での評価をお願いします。



注) HR6SとHS7A-DMC79**の組合せによる上記回路例は、ご使用条件によってはカテゴリ4にあてはまらない場合がありますので、ご使用前には十分確認いただきますようお願い致します。

Table showing maximum connection points per input point for HR6S-S/DN/AF and HS7A-DMC79**.

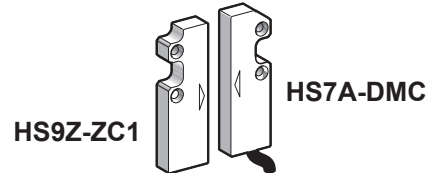
Table showing machine types and their specifications (LED display, cable length, etc.).

IDEC株式会社

本社 〒532-0004 大阪市淀川区西宮原 2-6-64
https://jp.idec.com/

INSTRUCTION SHEET

Coded Magnetic Switches HS7A-DMC



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 60204-1 to ensure the safety of machine operators and machine operating reliability, and have obtained the UL/CSA certifications

SAFETY NOTE

WARNING

UNINTENDED EQUIPMENT OPERATION

HS7A-DMC must be used only in association with a safety control unit. Never use HS7A-DMC without safety control unit. Failure to follow these instructions can result in death, serious injury or equipment damage.

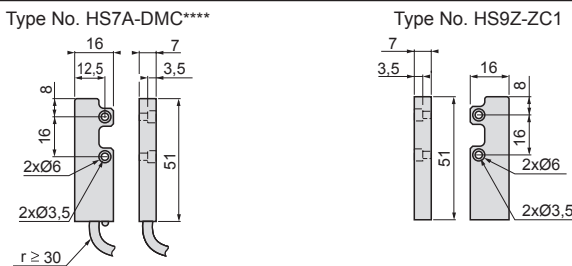
CAUTION

The use of the safety relay modules is required for the monitoring of the coded magnetic safety switches. The products can support up to category 4/PL e (EN ISO13849-1) by combining with a safety control unit*. See instruction sheet and user's manual for wiring with safety control unit. * Our products include HR5S (Category 2/PL d), HR6S, FS1A etc.. 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

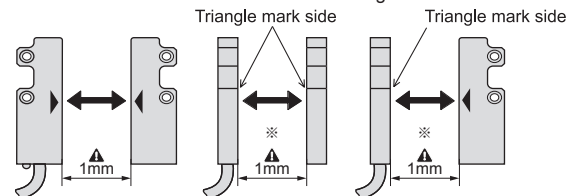
Conforming to standards	IEC / EN 60947-5-1 EN ISO / ISO 14119 UL 508, CSA C22.2 No.14
Interlocking device Type / the level of coded	Type 4 interlocking device / low level coded (EN ISO 14119)
Ambient air temperature	Operation : -13°F to 185°F(-25°C to +85°C) (no freezing) Storage : -40°F to 185°F(-40°C to +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 Ie = 100 mA
Protection (out of F1 fuse for the safety module protection)	F = 500 mA gG (gL) cartridge fuse (use a UL-recognized Type CC fuse in the United States). Optionally, in series with each switch contact.
Repeat accuracy	≤10%
Hysteresis	≤20%
Frequency of operating cycle	150 Hz
Drop out voltage	I=10mA 0,1V without LED; 2,4V with LED I=100mA 1V without LED; 4,2V with LED
Functional switches	Closing - Opening
Cable connection	By cable 4 x AWG 23 (0.25mm ²) length 78.74 in, 196.85 in or 393.70 in (2m, 5m, 10m), depending on model

2 Dimensions (mm)



3 Operation

• Functional directions - Minimum distance between the magnet and the sensor



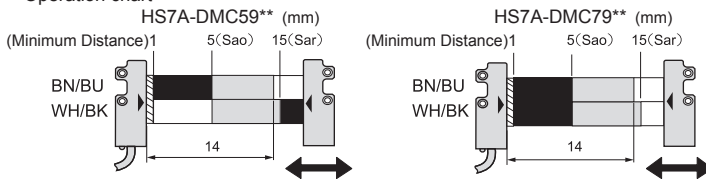
Minimum operating distance to be respected: 1mm ※ Sao: 4 mm

• Contact status

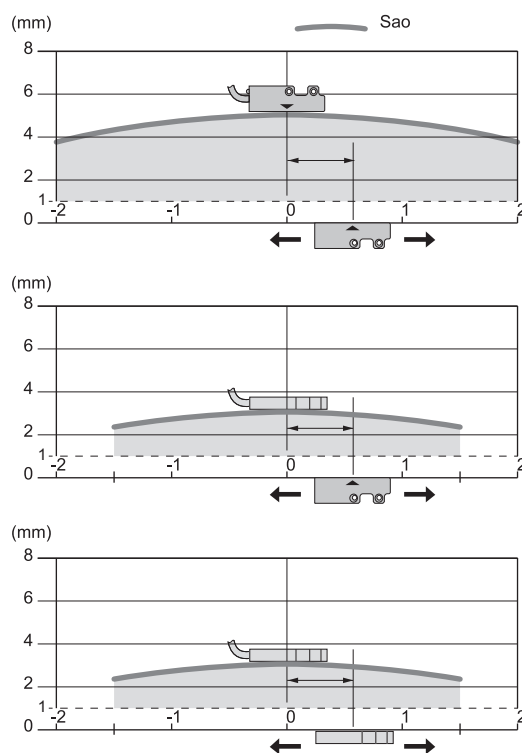
■	Contact closed (1)
□	Contact open (0)
◻	Transient state

Sao : Assured Operation Distance
Sar : Assured Release Distance

• Operation chart



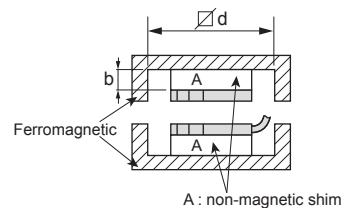
• Sensing area (mm)



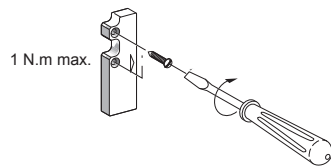
4 Mounting

• Required arrangement with ferromagnetic mounting support

	a	b	∅d
HS7A-DMC	40mm	13mm	81 x 55mm



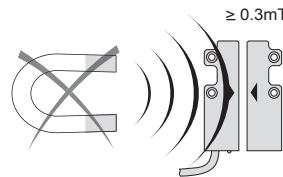
• Tightening torque, Tightening capacity



• Utilisation precautions

- Adjustment of coded magnetic switches
- Do not use safety switch as a mechanical stop.
- Do not adjust the position of switches using a hammer or other tool likely to exceed the device's shock and vibration tolerances.
- The safety switch fall during the installation may also lead to switch damage.
- The switch and actuator should be aligned by fitting of each shapes

CAUTION



5 Wiring Diagram

WARNING

HAZARDOUS VOLTAGE

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

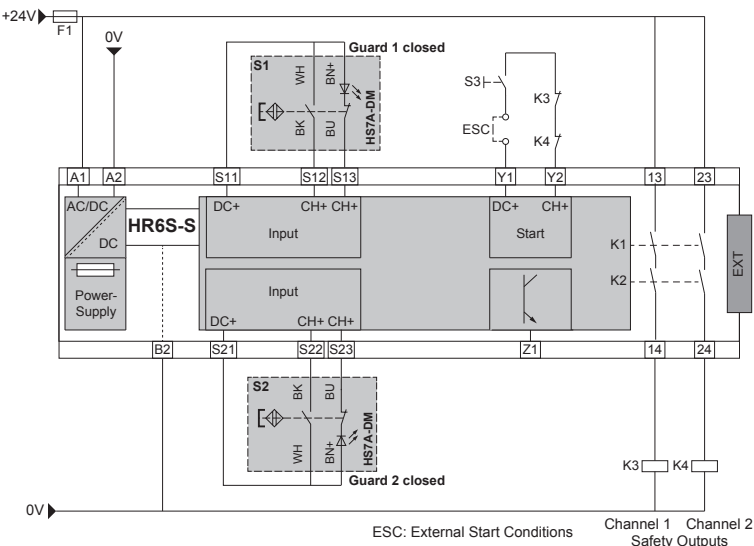
CAUTION

RISK OF MATERIAL DAMAGE

- Do not connect/disconnect the safety switches when they are powered.
- The safety switches integrate internal non resettable short-circuit protection (fuse resistance). Adding an external fuse (500mA gG) in series with each switch contact can avoid internal protection damage in case of misuse.

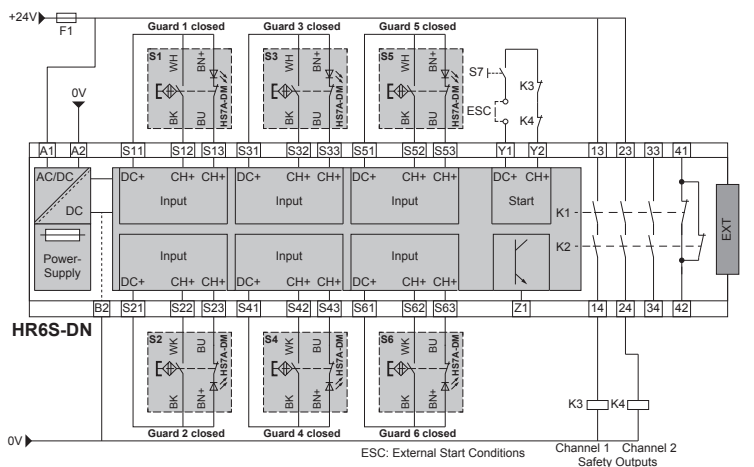
The following Category, PL and SIL are examples. They must be evaluated according to related standards (ISO 14119, etc.) after confirming the usage conditions in the actual application.

Cat. 4 / PL=e (EN/ISO 13849-1) / SIL3 - HR6S-S1* + HS7A-DMC59** (NC+NO) + HS9Z-ZC1



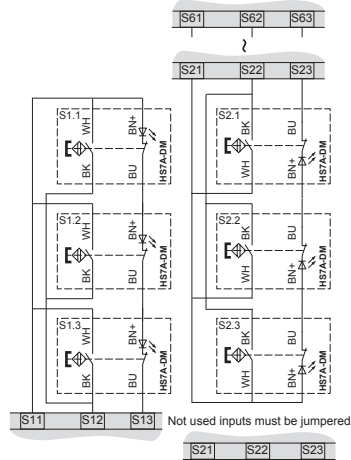
The following Category, PL and SIL are examples. They must be evaluated according to related standards (ISO 14119, etc.) after confirming the usage conditions in the actual application.

Cat. 4 / PL=e (EN/ISO 13849-1) / SIL3 - HR6S-DN1* + HS7A-DMC59** (NC+NO) + HS9Z-ZC1



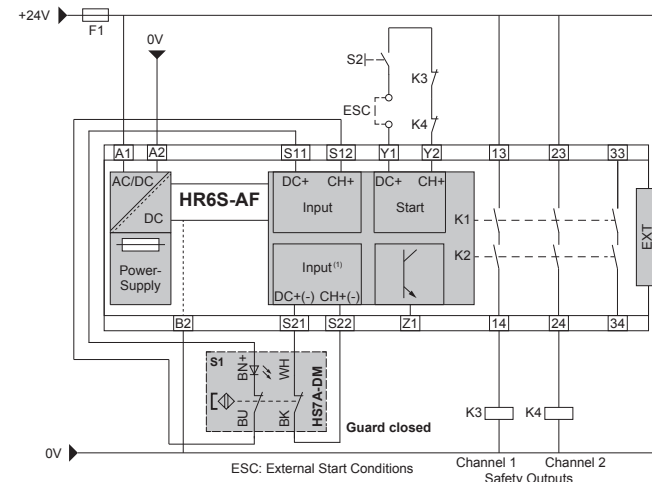
The following Category, PL and SIL are examples. They must be evaluated according to related standards (ISO 14119, ISO TR 24119 etc.) after confirming the usage conditions in the actual application.

Cat. 3 / PL=d (EN/ISO 13849-1) / SIL2 - HR6S-S1*, HR6S-DN1*



The following Category, PL and SIL are examples. They must be evaluated according to related standards (ISO 14119, etc.) after confirming the usage conditions in the actual application.

Cat. 4 / PL=e (EN/ISO 13849-1) / SIL3 - HR6S-AF1* + HS7A-DMC79** (NO+NO) + HS9Z-ZC1



Connectable HS7A-DMC per Input.

		HS7A-DMC59**		HS7A-DMC79**	
		without LED	with LED	without LED	with LED
HR6S-S/DN/AF	6	3	6	3	

Type

Type No.	LED	Cable	Contact	Type No.	LED	Cable	Contact
HS7A-DMC5902	without	2m	NO + NC	HS7A-DMC7902	without	2m	NO + NO
HS7A-DMC5912	with			HS7A-DMC7912	with		
HS7A-DMC5905	without	5m	NO + NC	HS7A-DMC7905	without	5m	NO + NO
HS7A-DMC5915	with			HS7A-DMC7915	with		
HS7A-DMC59010	without	10m	NO + NC	HS7A-DMC79010	without	10m	NO + NO
HS7A-DMC59110	with			HS7A-DMC79110	with		

IDEC CORPORATION

http://www.idec.com

EU declaration of conformity

Identification of the Product: Coded Magnetic Switch
Name and address of Manufacturer: IDEC CORPORATION
2-6-64 Nishimiyahara, Yodogawa-ku, Osaka 532-0004 Japan
Name and address of the authorized representative: APEM SAS
55, Avenue Edouard Herriot BP1, 82303
Caussade Cedex, France

This declaration of conformity is issued under the sole responsibility of the manufacturer.
Object of the declaration: Series Name - HS7A Series
Model No.: HS7A-DMC59** (** = 02, 12, 05, 15, 010, or 110), HS7A-DMC79** (** = 02, 12, 05, 15, 010, or 110)
The object of the declaration described above is in conformity with the relevant EU harmonization legislation:
2006/42/EC Machinery Directive
2014/30/EU Low Voltage Directive
2014/30/EU Electromagnetic Compatibility Directive
2011/65/EU and (EU) 2015/863 RoHS Directive
Applied Union harmonized legislation and references to the relevant harmonization standards used or references the other technical specifications in relation to which conformity is declared.
EN ISO 13849-1:2015, EN ISO 14119:2013, EN 60204-1:2018, EN 60947-5-1:2017+AC:2020, EN62061:2005+AC:2010+A1:2013+A2:2015, IEC 63000:2018

UK declaration of conformity

Identification of the Product: Coded Magnetic Switch
Name and address of Manufacturer: IDEC CORPORATION
2-6-64 Nishimiyahara, Yodogawa-ku, Osaka 532-0004 Japan
Name and address of the authorized representative: APEM COMPONENTS LIMITED.
Drakes Drive, Long Crendon, Buckinghamshire,
HP18 9BA, UK

This declaration of conformity is issued under the sole responsibility of the manufacturer.
Object of the declaration: Series Name - HS7A Series
Model No.: HS7A-DMC59** (** = 02, 12, 05, 15, 010, or 110), HS7A-DMC79** (** = 02, 12, 05, 15, 010, or 110)
The object of the declaration described above is in conformity with the relevant UK harmonization legislation:
S.I. 2008 No.1597 Supply of Machinery (Safety) Regulations 2008
S.I. 2016 No. 1101 Electrical Equipment (Safety) Regulations 2016
S.I. 2016 No.1091 Electromagnetic Compatibility Regulations 2016
S.I. 2012 No.3032 The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012
The products conform with the following standards: :
BS EN ISO 13849-1:2015, BS EN ISO 14119:2013, BS EN 60204-1:2018, BS EN 60947-5-1:2017 + AC:2020, BS EN 62061:2005 + AC:2010 + A1:2013 + A2:2015, BS EN IEC 63000:2018