

HS3A Non-contact RFID Safety Switches

Key features:

- RFID non-contact interlock switch, Category 4 and PLe (EN/ISO 13849-1) compliant.
- The sensor head with built-in safety function (redundant solid state output with internal monitoring) eliminates the need for a designated safety module.
- RFID ensures detection of slow-moving, open, sliding, and rattling doors.
- Multicode and unicode sensor heads are available. Unicode sensor head (one sensor head corresponds to one actuator) prevents tampering with the use of an unassigned spare actuator.
- Sensor head can be installed in 5 directions.
- Degree of protection IP67. Actuator IP67, IP69K (Note)

Note: IP69K is a degree of protection specified by Deutsches Institut für Normung (DIN), DW 40050 Part 9 for hot and high-pressure water.



Part Numbers
HS3A Non-contact RFID Safety Switches

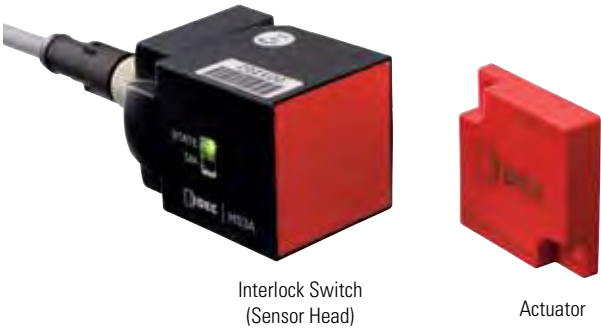
Outputs	Type	Part Number
Safety output: 2	Multicode	HS3A-H21M4
Monitor output: 1	Unicode	HS3A-H21U4

Accessories

Name		Part Number	Remarks	
Actuator		HS9Z-ZH31	Actuator for both multicode and unicode sensor heads. Supplied with two M5 × 10 mounting screws (stainless steel)	
Terminal Plug (For serial connection)		HS9Z-H3TP	Used on Y-branch connector when connecting two or more switches in series.	
Y-branch Connector (For serial connection)		HS9Z-H3YD	Used when connecting two or more switches in series. Plug connector: 8-pin (switch side), 5-pin (cable side)	
 M12 Plug Connection Cable	 For connecting two or more switches in series	5-pin, 5m	Used when connecting two or more switches in series. 5-pin plug connector is provided at one end.	
		5-pin, 10m		HS9Z-H3F510
	 For connecting a single switch	8-pin, 5m	HS9Z-H3F805	Used when connecting a single switch. 8-pin plug connector is provided at one end.
		8-pin, 10m	HS9Z-H3F810	
 M12 Plug Connection Cable (For serial connection)	5-pin, 5m	HS9Z-H3F5M05	Used when connecting two or more switches in series. 5-pin plug connectors are provided at both ends.	
	5-pin, 10m	HS9Z-H3F5M10		

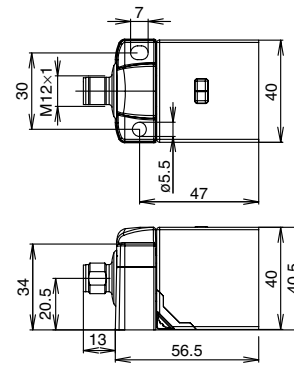
See below for an example of accessories required when connecting N number of HS3A switches in series.

HS3A non-contact interlock switch (HS3Z-H21□4): N pcs.	Y-branch connector (HS9Z-H3YD): N pcs.
Actuator (HS9Z-ZH31): N pcs.	M12 plug connection cable, open end (HS9Z-H3F5□□): 1 pc.
Terminal plug (HS9Z-H3TP): 1 pc.	M12 plug connection cable, plug connectors at both ends (HS9Z-H3F5M□□): N-1 pcs.

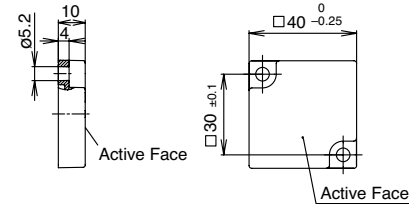


Specifications

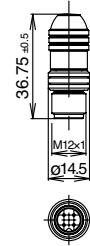
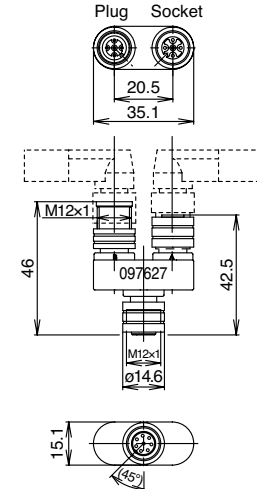
Applicable Standards		EN60947-5-3 (IFA approval) EN954-1 EN ISO13849-1 EN62061 GS-ET-14 (IFA approval) UL508 (UL listed) CSA C22.2 No.14 (c-UL listed)
Operating Temperature		−20 to +55°C (no freezing)
Relative Humidity		5 to 80% (no condensation)
Storage Temperature		−25 to +70°C
Pollution Degree		3
Sensor Classification		PDF-M (EN60947-5-3)
Performance Level (PL)		e (EN ISO 13849-1)
Safety Category		4 (EN ISO 13849-1)
Safety Integrity Level (SIL)		3 (EN 62061)
Degree of Protection	Interlock Switch (sensor head)	IP67
	Actuator	IP67, IP69K (Note)
Rated Voltage (UB)		24V DC ±15%
Current Consumption		80mA (at no load)
Dielectric Strength		500V AC
Output Specifications	Safety Output	Semiconductor output, P-channel Output voltage: Max: UB [V], Min.: UB-1.5 [V] Maximum output current per safety output: 400 mA
	Monitor Output	Semiconductor output, P-channel Output voltage: Max: UB [V], Min.: 0.8×UB [V] Maximum output current: 200 mA
Operation Distance	Turn-on Distance	15mm (typ.)
	Assured Turn-on Distance (Sao)	13mm
	Maximum Turn-off Distance (Sar)	58mm
Response Time	When using a single switch	260 ms (actuator removed)
		150 ms (non-identical input signal at IA/IB)
		150 ms (non-identical enabling input state at IA/IB)
		300 ms (short-circuit or cross-circuit at OA/OB, or internal error)
	When using two or more switches (max.)	360 ms (actuator removed)
		250 ms (non-identical input signal at IA/IB)
		400 ms (non-identical enabling input state at IA/IB)
		400 ms (short-circuit or cross-circuit at OA/OB, or internal error)
Shock Resistance		Operating extremes: 300 m/s ² (11 ms)
Vibration Resistance		10 to 55 Hz, amplitude 0.5 mm
Material		PBT
Cable		M12 plug connection cable, 8-pin
Weight (approx.)		400g (HS3A-H21□□)
Attachment		System Manual (CD-ROM)

Dimensions (mm)
Sensor Head

Actuator

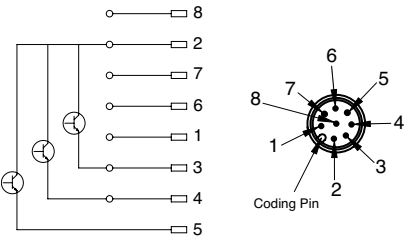


Supplied with two mounting screws (M5 × 10).

Terminal Plug
HS9Z-H3TPY-branch Connector
HS9Z-H3YD

Specifications

Non-contact Interlock Switch



Plug Connection Cable
HS9Z-H3FB

Pin	Wire	Legend	Description
1	White	IB	Enabling input (channel 2)
2	Brown	UB	Power supply (24V DC)
3	Green	OA	Safety output (channel 1)
4	Yellow	OB	Safety output (channel 2)
5	Gray	OUT	Monitoring output
6	Pink	IA	Enabling input (channel 1)
7	Blue	0V	0V
8	Red	RST	Reset input for hardware

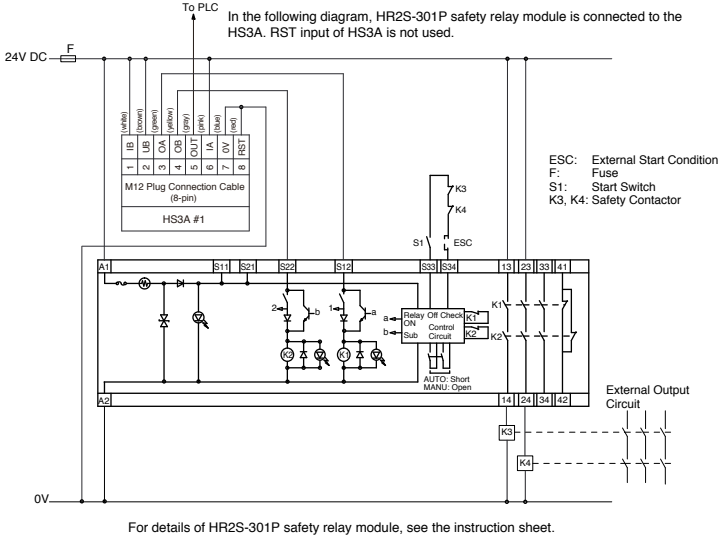
HS9Z-H3FS

Pin	Wire	Legend
1	Brown	UB
2	White	OA
3	Blue	0V
4	Black	OB
5	Gray	RST

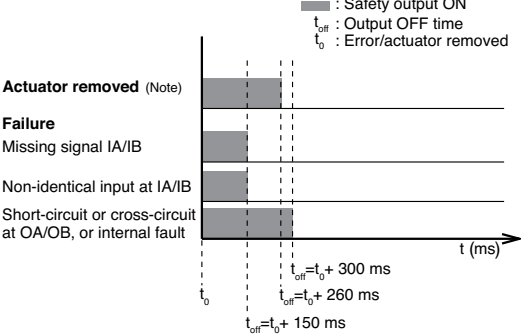
Wiring Diagram

When using a single HS3A

When using a single HS3A, connect as shown in the figure below (Note). The OUT output can be connected to a control system, to a PLC for example, as a monitoring output. The HS3A can be reset via the RST input. To reset, apply 24V DC for at least 3 seconds. When not using the RST input, connect the RST input to 0V.



Safety Output Response Time



Note: The time required for the safety output to turn off after the actuator moves outside the operating distance of the HS3A switch.

Note: Safety performance of the actual system is determined by performing a risk assessment on the entire system. Depending on the risk level the system may entail, K1 and K2 need to be monitored to prevent serious accidents.

353