





HLR-A2-12 Safety relay (Relay with forced guide contact)





Features

- Multiple contact forms: two groups of conversion, a group of normally open + a group of normally closed (type 1), a group of normally open + two groups of normally closed (type 2)
- Forced guide contact structure (according to IEC 61 810-3)
- Strong load capacity: 8A contact switching ability
- Strong insulation: 10kV surge voltage between contact and coil, 6kV surge voltage between contact groups (waveform 1.2/50µs)
- UL insulation grade: F insulation grade is available

RoHS compliant

Contact parameters

Contact form	2Z, HD1, HD2
Mandatory orientation type (According to IEC 61810-3)	HD1,HD2: Class A mandatory orientation 2Z: Class B mandatory orientation
Contact resistance ⁽¹⁾	≤100mΩ (1A 6VDC)
Contact material	AgSnO ₂
Rated load (resistance)	6A 250VAC / 30VDC
Maximum switching voltage	400VAC / 30VDC
Maximum switching current	8A
Maximum switching power	1500VA /180W
Mechanical durability	1 x 10 ⁷ times
Electrical durability ⁽²⁾	1 x 10 ⁵ times(1NO: 6A 250VAC/30VDC, Resistive load, 70 °C, 1s on 9s off) 5 x 10 ⁴ times(1NC: 6A 250VAC/30VDC, Resistive load, 70 °C, 1s on 9s off)

Note:(1) The preceding values are initial values.

(2) The load is only applied on 1NO or 1NC during the test.

Coil specification sheet 23 °C

Rated voltage VDC	Operating voltage VDC ⁽¹⁾	Release voltage VDC ⁽¹⁾	Maximum voltage VDC ⁽²⁾	Coil resistance Ω
5	≤3.80	≥0.5	7.5	35.7 x (1±10%)
6	≤4.50	≥0.6	9.0	51 x (1±10%)
9	≤6.80	≥0.9	13.5	116 x (1±10%)
12	≤9.00	≥1.2	18	206 x (1±10%)
15	≤11.3	≥1.5	22.5	321 x (1±10%)
18	≤13.5	≥1.8	27	483 x (1±10%)
21	≤15.8	≥2.1	31.5	630 x (1±10%)
24	≤18.0	≥2.4	36	823 x (1±10%)
36	≤27.0	≥3.6	54	1851 x (1±10%)
40	≤30.0	≥4.0	60	2286 x (1±10%)
48	≤36.0	≥4.8	72	3291 x (1±12%)
60	≤45.0	≥6.0	90	5142 x (1±12%)
80	≤64.0	≥8.0	120	9143 x (1±12%)
110	≤82.5	≥11.0	165	17285 x (1±12%)

Note:(1) The above values are initial values;

(2) The maximum voltage refers to the maximum voltage value that the relay coil can withstand in a short time.

Coil parameters

Rated coil power	About 700mW
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Performance parameters

Insulation resistance	1000MΩ (500VDC)	
Dielectric withstand voltage	Between coil and contact	4000VAC 1 min
	Disconnect between contacts	1500VAC 1 min
	Between contact groups	3000VAC 1 min
Surge voltage	Between coil and contact	10kV (1.2 / 50µs)
	Disconnect between contacts	2.5kV (1.2 / 50µs)
	Between contact groups	6.0kV (1.2 / 50µs)
Operating time (at rated voltage)	≤15ms	
Release time (at rated voltage)	≤10ms	
Coil temperature rise (at rated voltage)	60K (coil drive voltage is 1.1 times Un, contact current carrying is rated current, ambient temperature 85)	
Vibration	NO: 10Hz ~ 55Hz 1.6mm Double amplitude , 55Hz ~ 200Hz 98m/s ² , NC: 10Hz ~ 55Hz 0.4mm Double amplitude	
strike	stability	NO:98m/s ² NC: 49m/s ²
	intensity	980m/s ²
Creepage distance	Between coil and contact	8mm
	Between contact groups	5.5mm
Air gap	Between coil and contact	8mm
	Between contact groups	5.5mm
Humidity	5% ~ 85% RH	
Temperature range	-40°C ~ 85°C	
Outlet form	Printed plate	
Weight	About 20g	
Encapsulation mode	Plastic seal	

Note : (1) UL insulation grade: F, B;

(2) The above values are initial values.

Safety certification

UL/CUL	6A 250VAC/277VAC/30VDC 70°C NO: Pilot duty A300, 70°C NC: Pilot duty B300, 70°C
TÜV	NO: 8A 250VAC 85°C NC: 6A 250VAC 85°C NO: 3A 240VAC(AC-15) 55°C NC: 1.5A 240VAC(AC-15) 55°C

Note: (1) For loads whose temperature is not indicated in the table, the ambient temperature is room temperature;

(2) The above only lists some typical loads of the product certification, the detailed test conditions of each load are different, so the electrical durability life times are not the same, if you need detailed information, please contact our company.



Order mark example

	HLR-A2-12/	12	-ZZ	S	T	F	G	(XXX)
Relay type								
Coil voltage	5, 6, 9, 12, 15, 18, 21, 24, 36, 40, 48, 60, 80, 110VDC							
Contact form	HD1: One normally open + one normally closed (Type 1) HD2: One normally open + one normally closed (Type 2) ZZ: Two-group conversion							
Plastic seal form ⁽¹⁾	S: Plastic seal		None: anti-flux type					
Contact material	T: AgSnO ₂							
Insulation class	F: F: Level F		None: Level B					
Contact coating	G: Gold plating ⁽²⁾		None: not gold-plated					
Property number ⁽³⁾	XXX: Customer special requirements			None: Standard type				

Note: (1) When the relay is loaded into the PCB board and welded, if it is necessary to conduct overall cleaning or surface treatment, please contact our company to agree on appropriate welding conditions and appropriate product specifications;

(2) For gold-plated contacts, the minimum load is 10mA 5VDC, if the customer has a special load, please contact us for evaluation, provide suitable product specifications;

(3) For the shell using PC material, avoid being contaminated by organic solvents, otherwise chemical reactions may cause the shell to swell or crack.

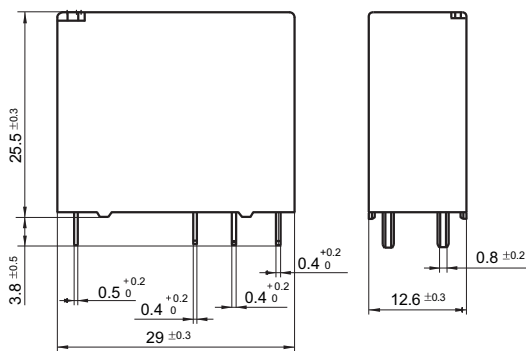
(4) The special requirements of customers shall be identified by the form of feature number after review by our company.

Outline drawing, wiring diagram, mounting hole dimensions

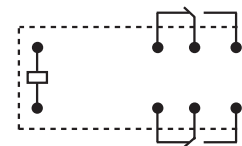
Unit: mm

HLR-A2-12/□□-ZZ□T□(□□□)

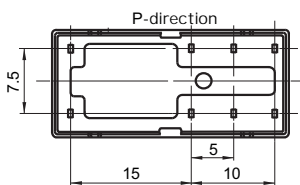
External drawing



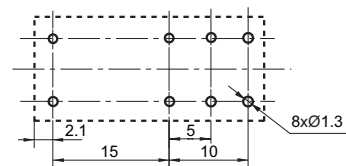
Wiring diagram



P↑



Mounting hole size (Bottom view)



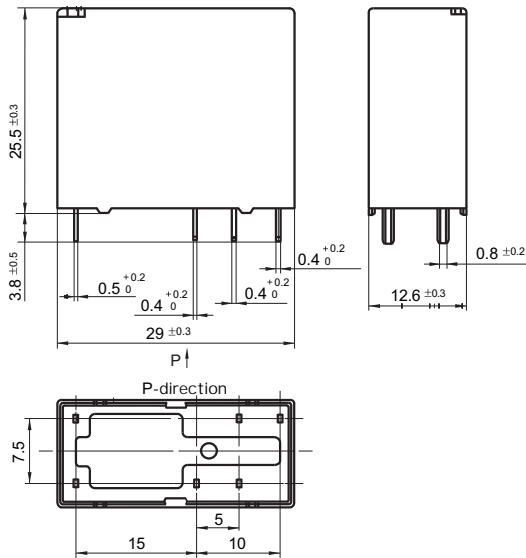


Outline drawing, wiring diagram, mounting hole dimensions

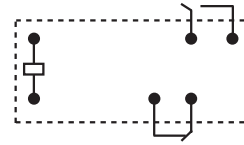
Unit: mm

HLR-2-12/□□-HD1□T□(□□□)

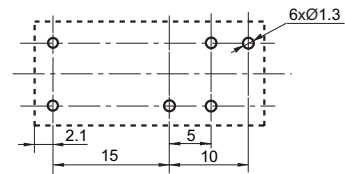
External drawing



Wiring diagram

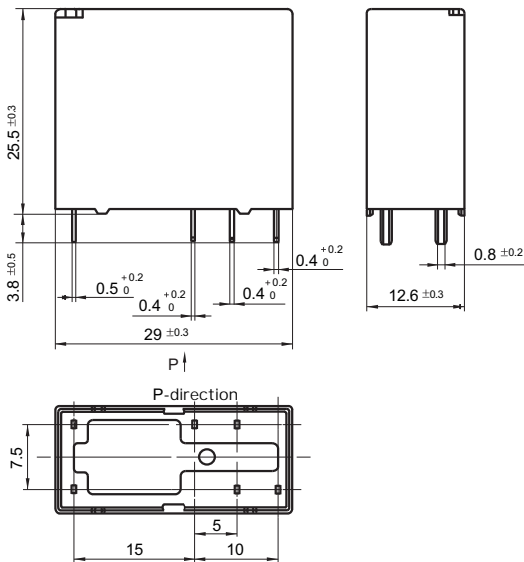


Mounting hole size (Bottom view)

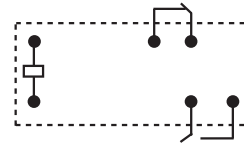


HLR-2-12/□□-HD2□T□(□□□)

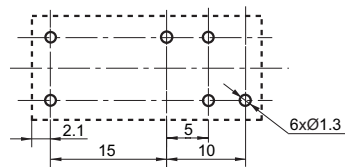
External drawing



Wiring diagram



Mounting hole size (Bottom view)

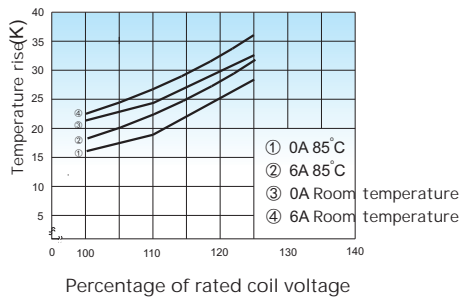


Note: (1) No dimensional tolerance has been noted in the overall dimension of the product part. When the overall dimension is less than 1mm, the tolerance is ±0.2mm; When the overall dimensions are between (1-5)mm, the tolerance is ±0.3mm; When the overall size is > 5mm, the tolerance is ±0.4mm;
(2) The dimension tolerance of the mounting hole is ±0.1mm.

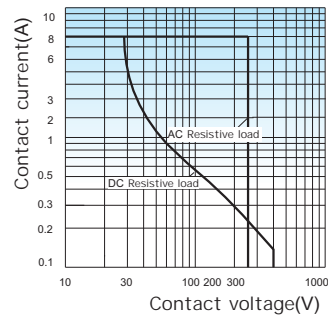


Performance curve

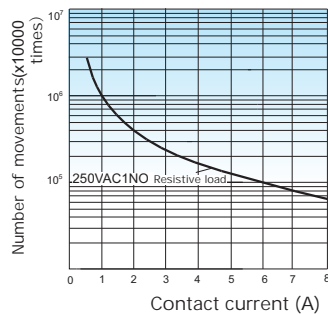
Coil temperature rise



Contact breaking ability

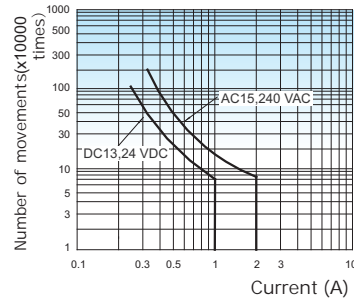


Electrical durability curve



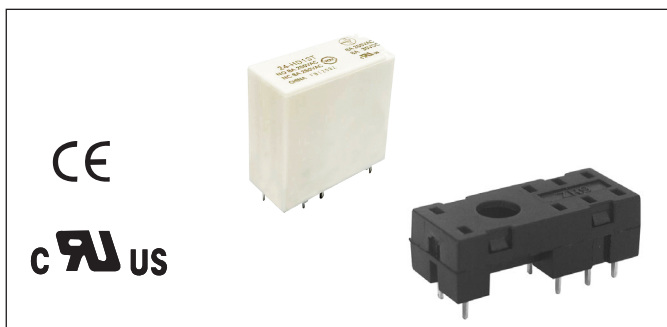
Note:
(1) Test conditions:
1NO end, resistive load 250VAC, room temperature, 1s on 9s off.
(2) The above values are typical for test tests.

Inductive electrical durability curve



Note:
Test according to IEC61810-1 Appendix B Table B.3 method, room temperature, 1NO, 1s on 9s off.

Relay socket



Features

- Insulation resistance 1000M
- PCB type, screw type, rail type installation form is available
- Sockets with finger protection are available
- A variety of plug-in modules are available for power-on indication, line protection and other functions


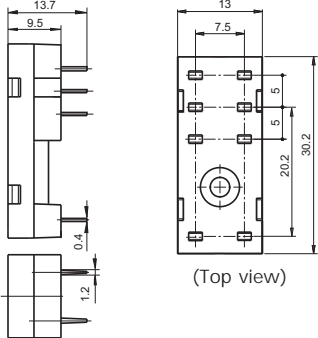
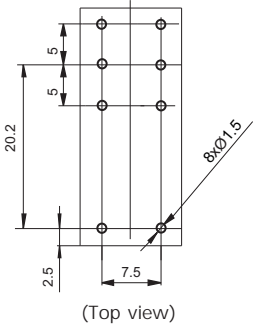

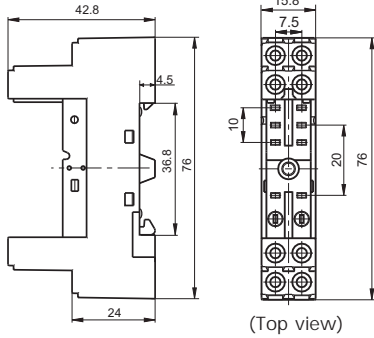
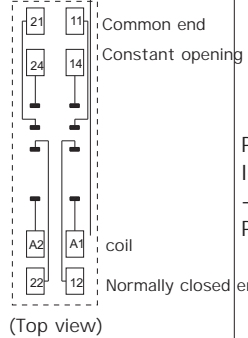
Performance parameter

Socket type	Rated voltage	Rated current	Ambient temperature	Dielectric withstand voltage	Screw torque	Strip wire length
14FF-2Z-A1	250VAC	10A	-40 °C ~ 70°C	5000VAC	—	—
14FF-2Z-C2(767)	250VAC	10A	-40 °C ~ 70°C	5000VAC	0.6N·m	7mm



Outline drawing, wiring diagram, mounting hole dimensions

Unit: mm

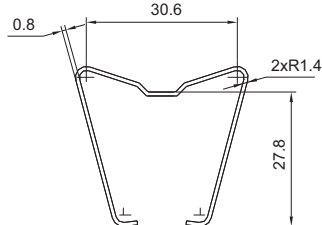
Socket (If you need the parts in the picture, please order separately)	Overall dimension	Wiring diagram/mounting hole dimensions	Optional accessories
<p>14FF-2Z-A1</p>  <p>Printed plate outlet, Printed plate or screw mounting</p>	 <p>(Top view)</p>	 <p>(Top view)</p>	<p>Metal circlip 14FF-H3. Note: After the socket is installed with 14FF-H3 circlip, the medium can withstand pressure and is 1500VAC.</p>
<p>14FF-2Z-C2(767)</p>  <p>Screw outlet, Rail or screw mounting, With finger protection structure</p>	 <p>(Top view)</p>	 <p>(Top view)</p>	<p>Plastic circlip 14FF-H6 Identification board 14FF-M1 Plug-in module</p>

Note: (1) * If you need to use plug-in modules, please refer to the corresponding product manual.
(2) The figure shows the socket and accessories. If you need accessories, please order by model or consult our sales staff.

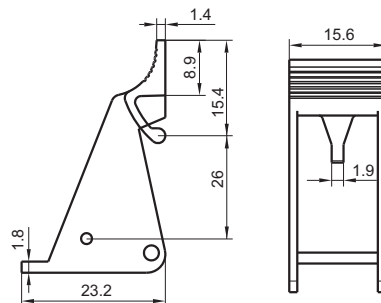
Size of relevant parts (optional)

Unit: mm

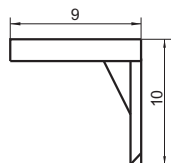
Clamp spring 14FF-H3(metal circlip)



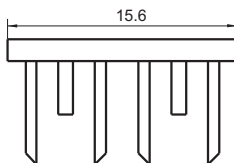
14FF-H6(plastic circlip)



Sign Board



14FF-M1



Points for attention when selecting the socket:

1. Please select the appropriate relay socket according to the actual installation environment, the number of relay contacts and the position of the relay outlet. If you have any questions during the selection process, please contact us for more technical support;
2. The socket that can install the identification card is equipped with a standard sign plate, and other related accessories must be selected separately. Please indicate the model of the selected relay socket and related accessories when ordering.
3. The above only lists the typical sockets and related accessories for HF115FP relay products, if you have special requirements, please contact us;
4. The main outline size, when the outline size >50mm, tolerance is ±1mm; When 20mm< overall size 50mm, the tolerance is ±0.5mm; When 5mm< overall size 20mm
5. For guide rail installation, it is recommended to use DIN standard 35x7.5x1mm, 35x15x1mm standard guide rail.