# HFGA5 SAFETY RELAY MODULE



## Features

- Application of safety coupling relays in SIS process industry
- S-1H: 1oo3 redundant design; manual diagnosis of output relay safe state on dangerous fault
- S-1H1D: 1oo2 redundant design; manual or safety controller DI diagnosis of output relay safe state on dangerous fault
- S-1-1H: 1oo2 redundant design; self-diagnosis and safe state hold on dangerous component failure
- Compliant with IEC 61511, EN 60947-5-1 and EN 61508 SIL 3
- Plug-in screw or spring terminals optional

c UL us LISTED IND.CONT.EQ. E517149

SIL3 EN 61508

CE

Product Safety Functional Safety TÜVRheinland CERTIFIED www.tuv.com ID 0600000000

## CHARACTERISTICS

| INPUT | |
|---|---|
| Nominal voltage | 24VAC/VDC |
| Nominal voltage deviation range | -15% ~ 10% |
| Power consumption | ≤2.4W |
| Wiring polarity | Polar(pay attention to wiring polarity) |
| Terminal type | Terminal block(See Annex) |
| **OUTPUT** | |
| Max. Rated output power | 96W(24VDC) |
| | 1000VA(250VAC) |
| Operating time (@rated voltage) | ≤70ms |
| Release time (@rated voltage) | ≤50ms |
| Recovery Time | ≤0.5s |
| Minimum switching voltage | 15VDC |
| Minimum switching power | 0.4W |
| Contact load(Res. load) | 5A (24V(DC 13)) |
| | 5A (250V(AC 15)) |
| Terminal type | Terminal block(See Annex) |

| ENVIRONMENTAL AND SAFETY REGULATIONS | | |
|---|---|---|
| Ambient temperature | | -20℃~70℃ |
| Storage temperature | | -40℃~85℃ |
| Mounting | Mode | DIN35mm |
| | Requirement | Installation location:IP54 |
| Standard compliance | | IEC 61511,EN 60947-5-1, EN 61508 |
| Rated impulse withand voltage | | 6kV |
| Vibration resistance | | 2Hz ~ 25.7Hz 1.5mm DA |
| | | 25.7Hz ~ 150Hz 2g |
| Rated insulation voltage | | 250VAC |
| Pollution degree | | 2 |
| Surge voltage category | | III |
| Pollution degree | | IP20 |

## Safety instructions

- ●Please follow the safety regulations of electrical engineering, industrial safety and responsible units.
- ●Ignoring these safety regulations may result in death, serious personal injury or damage to equipment!
- ●Commissioning, installation, modification and update can only be done by professional electrical engineers!
- ●Operate in a closed control cabinet that meets IP54
- ●Turn off the power supply before working on the equipment!
- ●In emergency stop applications, a high-level control system must be used to avoid automatic restart of the equipment
- ●Dangerous voltages may be present on the components of electrical switchgear during operation!
- ●The maintenance of the equipment, especially the opening of the casing, must only be done by the manufacturer.
  When operating the relay module, on the contact side, the operator must follow the EMC standard EN 61000-6-4 for electrical and electronic equipment, and take appropriate measures if required
- ●A suitable and effective protection circuit needs to be provided for inductive loads (such as contactors, solenoid valves, motors, etc.); the protection circuit is connected in parallel with the load and not in parallel with the switch contacts.

## ORDERING INFORMATION

| | HFGA5 | S- | X- | XXXX- | XXX | (XXX) |
|---|---|---|---|---|---|---|
| **Type** | | | | | | |
| **Product features** | **S:** Single-channel input | | | | | |
| **Additional**(1) **features** | **Nil:** Without internal self-diagnosis function[1)]<br>**1:** With internal self-diagnosis function | | | | | |
| **Contact arrangement** | **1H:** 1 form A<br>**1H1D:** 1 form A+1 form B<br>**2H1D:** 2 form A+1 form B<br>**3H1D:** 3 form A | | | | | |
| **Nominal voltage** | **D24**：24VAC/DC | | | | | |

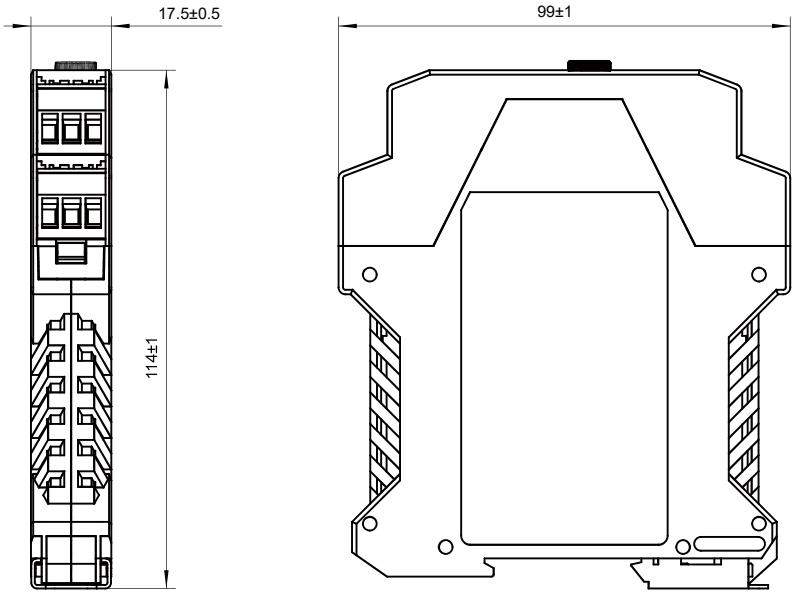
**Special code**[2)] **Nil:** Standard **XXX**：Customer special requirement

**Notes:** 1) Only the HFGA5/S-1-2H1D-D24,HFGA5/S-1-3H-D24 model is equipped with an internal self-diagnosis function.
2) Special requirements of customers will be expressed as special codes after being evaluated by hongfa；such as: 013 characteristic number is the spring type terminal model.

## OUTLINE DEMENSIONS,WIRING ID DIAGRAM

Unit：mm

### Outline Dimensions



## OUTLINE DEMENSIONS,WIRING ID DIAGRAM

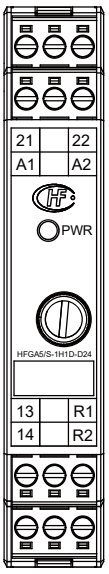
Unit：mm

### Wiring ID diagram

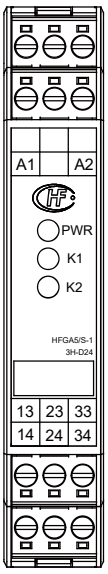
HFGA5/S-1H-D24



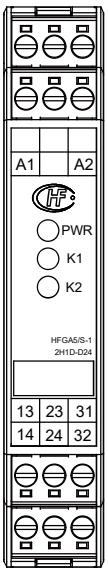

HFGA5/S-1H1D-D24




HFGA5/S-2H1D-D24



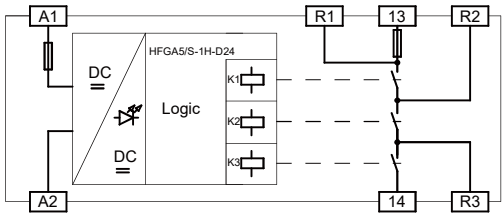

HFGA5/S-1-3H-D24



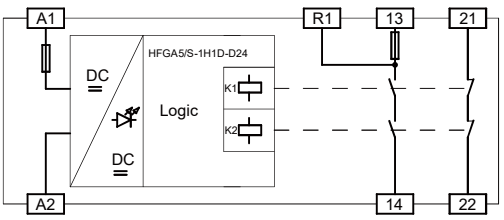

Remarks: The labels shown in the above figure are the same as those of the typical wiring diagram (see the actual identification for details)

### Wiring Diagram

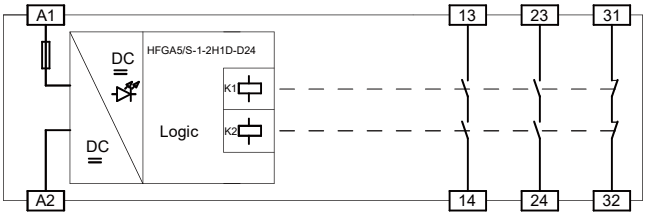
HFGA5/S-1H-D24



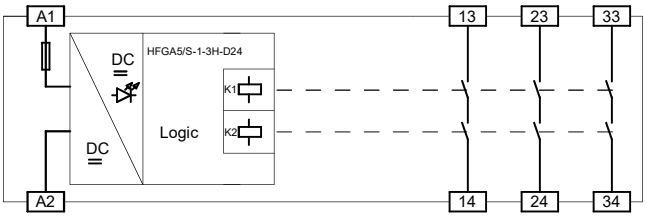

HFGA5/S-1H1D-D24




HFGA5/S-2H1D-D24

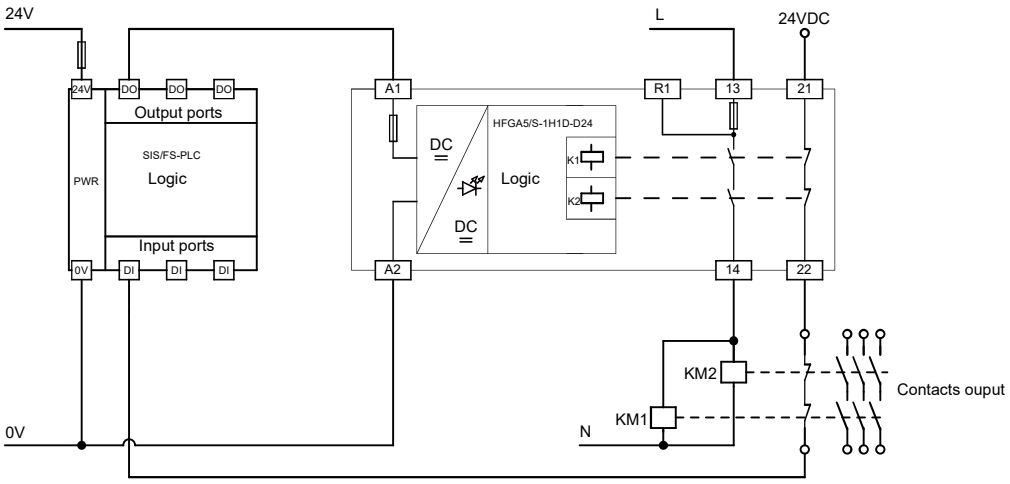



HFGA5/S-1-3H-D24



## WIRING DIAGRAM,LOGICAL TIME SERIES DIAGRAM

Wiring diagram connected to an emergency stop button with two normally closed contacts (HFGA5/S-1H1D-D24 is used as an example)




## Annex 1: Terminal Parameter Table

| Plug-in screw terminal block plugs (regular) | |
|---|---|
| Rated current | 15A |
| Rated voltage | 300V |
| Conductor Cross Section | 28-12 AWG (0.2-2.5mm²) |
| striping Length | 7mm |
| Pitch | 5.0mm（4P） |
| Ambient temperature | -40～105℃ |
| Rated Withstand Pulse Voltage | 4kV |
| Surge voltage category | III |
| Pollution degree | 2 |

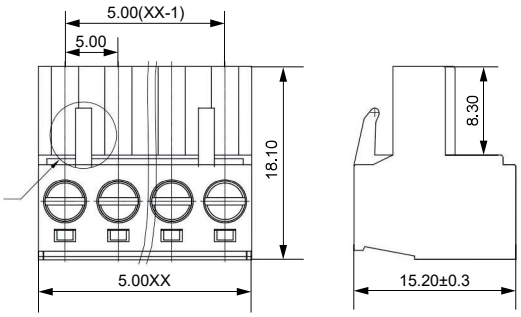
| Plug-in spring-connected terminal plug (013) | |
|---|---|
| Rated current | 15A |
| Rated voltage | 300V |
| Conductor Cross Section | 28-12 AWG (0.2-2.5mm²) |
| striping Length | 7mm |
| Pitch | 5.0mm（4P） |
| Ambient temperature | -40～105℃ |
| Rated Withstand Pulse Voltage | 4kV |
| Surge voltage category | III |
| Pollution degree | 2 |

| Plug-in spring connection terminal socket | |
|---|---|
| Rated current | 15A |
| Rated voltage | 300V |
| Conductor Cross Section | / |
| striping Length | / |
| Pitch | 5.0mm（4P） |
| Ambient temperature | -40～105℃ |
| Rated Withstand Pulse Voltage | 4kV |
| Surge voltage category | III |
| Pollution degree | 2 |

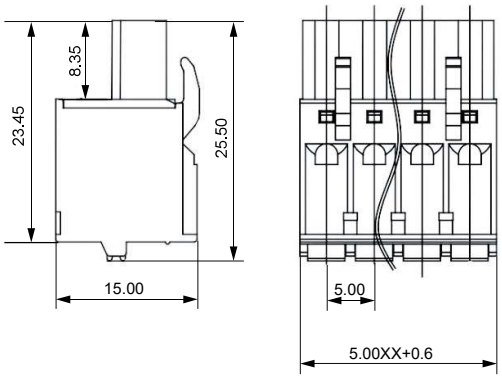
## OUTLINE DIMENSIONS

Unit：mm

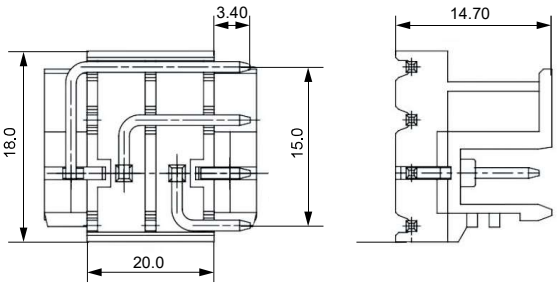
Plug-in screw terminal block plugs (regular)




Plug-in spring-connected terminal plug (013)




Plug-in spring connection terminal socket




Disclaimer:

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

© Xiamen Hongfa Electroacoustic Co.,Ltd.All rights of Hongfa are reserved.