FORWARD RELAYS

108×67×101.8(mm)

NFGP600

Features

- The contact part is ceramic-sealed and can meet the IP67 protection rating.
- The insulation resistance is up to 1000 MΩ (1000 VDC), and the dielectric withstand voltage between the contact and the coil is up to 4 kV, IEC 60664-1 compliant.
- Used for high-voltage DC switching circuits in energy storage.

Ordering information

NFGP600	1500	-	24	H	1A	C	5
1	2		3	4	5	6	7

1 Part number：NFGP600
2 Load voltage(V)：1000:1000VDC；1500:1500VDC
3 Coil voltage(V)：DC:12,24
4 Contact arrangement ：H:1 Form A
5 Aux contact type：1A:1 Form A
6 Coil terminal form ：C:Connector
7 Load terminal form ：5:Internal thread

Main contact data

Contact Arrangement	1H
Contact Materia	Copper Alloy
Contact Rating	600A
Min. Applicable Load	1A/12VDC
Max. Breaking Current	2500A/300VDC(≥1 cycle)
Rated Load Voltage	1000VDC, 1500VDC

Auxiliary contact data

Contact Arrangement	1A
Rated Load	0.1A/6VDC
Min. Applicable Load	3mA/6VDC
Contact Voltage Drop	≤150mV(1A)

Performance Specification[1]

Contact Resistance	≤0.2mΩ(600A)
Electrical Endurance (Breaking)	≥1×10^3(600A /450VDC , ON:OFF=0.6s:5.4s)
	≥5×10^2(600A /750VDC , ON:OFF=0.6s:5.4s)
	≥2×10^2(600A /1000VDC , ON:OFF=0.6s:5.4s)
Mechanical Endurance	≥2×10^5

Coil Parameter[1]

Coil voltage VDC	Coil resistance Ω ±10%	Pick-up voltage VDC	Drop-out voltage VDC	Max. allowable voltage VDC	Coil power W	Operate time ms	Release time ms
12	14.4	≤9	≥1.2	18	10	≤50	≤30
24	57.6	≤18	≥2.4	36			

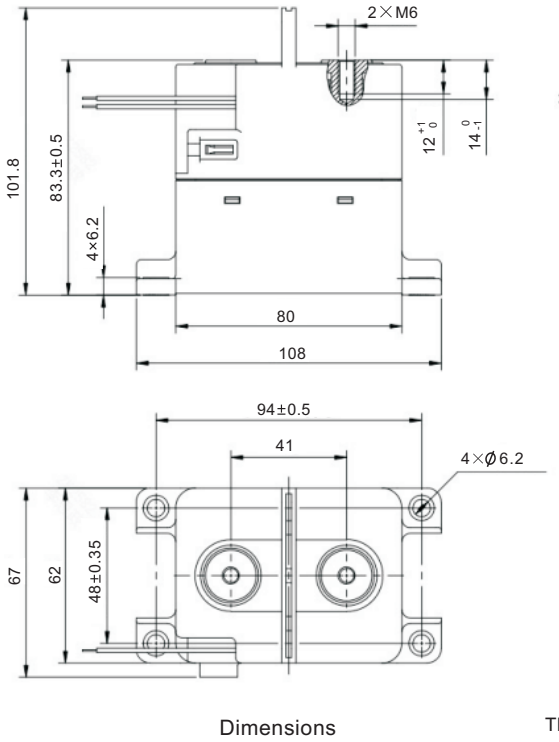
Notes1. Standards test condition：
Temperature:(23±5)℃
Humidity: (25% ~75%)RH
Direction of measurement: Terminals up position is standard position

Characteristics[1]

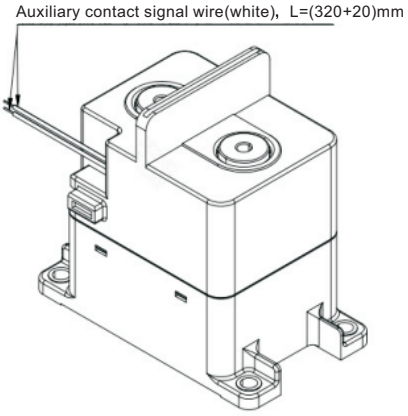
Insulation Resistance		1000MΩ (1000VDC)
Dielectric Strength Between Open Contacts Between Contact and Coil		 4000VAC(50Hz,1min) Leak Current 1mA 4000VAC(50Hz,1min) Leak Current 1mA
Between Contact and Auxiliary Contact		4000VAC(50Hz,1min) Leak Current 1mA
Vibration Resistance		10Hz~500Hz 49m/s^2
Shock Resistance	Stability	ON: 98m/s^2, Half Sine 11ms, Testing Time:10 μs OFF: 98m/s^2, Half Sine 11ms, Testing Time:10 μs
	Durability	490m/s^2, Half Sine 6ms
Operating Ambiance Temperature[2]		-40℃ ~ 85℃
Operating Ambiance Humidity		5%~85%(No ice or Frosting)
Pressure		86kPa ~ 106kPa
Weight(Approx.)		875g

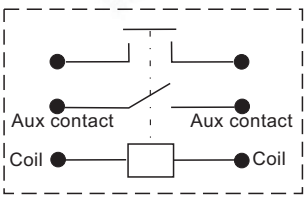
Notes2. The product storage location shall not be exposed to corrosive gas. Avoid direct sunlight on the products.

Dimensions mm



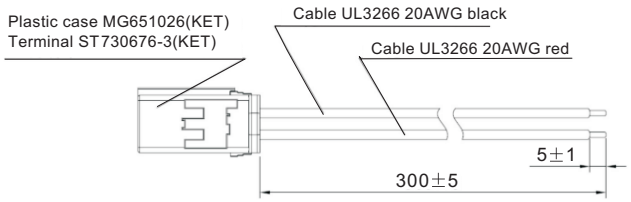
Dimensions





The coil, main and auxiliary contacts are non-polar

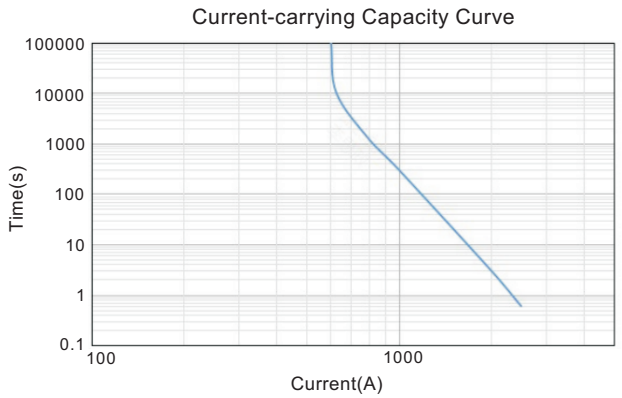
Wiring Diagram



Coil Connection

Notes: Unlabeled tolerance: when less than 10mm, tolerance is ± 0.3mm; when (10~50) mm, tolerance is ± 0.5mm; when more than 50mm, tolerance is ± 0.8mm.

Reference Data

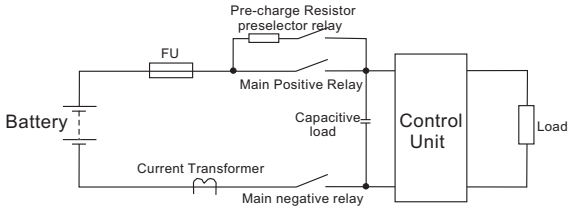


Notes：Current Carrying Capacity：600A:Continued；800A:20min；1000A:5min；2500A:0.6s .

Precautions for use :

1:The relay is a high-voltage DC switching device. In the final fault state, it may not be able to connect or cut off. Once the product cannot be cut off, may lead to abnormal heat and smoke, fire or other accidents. Therefore, please avoid the use of the above specifications (including but not limited to coil rating, load ratings and electrical life, etc.).Please use a circuit that can quickly cut off the load In an emergency; To ensure safety, the product should be replaced regularly.

2.When the relay is used in the charging circuit, the pre-charging circuit should be added to ensure that the impact current is kept below the rated load current of the relay. As shown in the following figure, the charging time sequence is: firstly switch on the main negative relay, then switch on the pre-filled relay, and finally switch on the main positive relay. If there is no pre-charging circuit, a transient large current will be generated at the moment of the main relay conduction, which will cause the contact bonding of the relay to be unable to be cut off. Please pay attention to it.



3.Contacts rating is the value under resistive load. Please take measures of surge absorption device together with inductive load when using the L/R ⩾ 1ms inductive load (L load),otherwise it may lead to the decrease of electrical endurance and defective switch.

4.It is recommended to install the nonlinear resistance (recommend using variable resistance) in order to suppress the reverse electromotive force of coil. But please do not use diode, otherwise it will lead to the decline of relay performance.

5.It is strictly prohibited to place the relay for a long time in the environment beyond the operating temperature (-40~85℃) of the product.

6.Please do not install the product in a strong magnetic field (the periphery of a transformer, or magnet) or near the heating object.

7.In order to prevent looseness, please use the gaskets correctly when installing the relay. Please use M6 screws to install the relay, the locking torque should be controlled within 6N.m ~ 8N.m. During and after the installation of the load-terminal screws, the axial torque borne by the load terminals should be less than 1 N.m. The product may be damaged in the case of excessive torque.

8.Please avoid grease and other foreign matter attached to the terminals. Please use two connecting wires with a size of over 185mm^2 , otherwise it may lead to abnormal heating of the terminals.

9.Please pay attention to the thickness of copper bars and the value of the torque. If it goes beyond the recommended values in the below table, it may cause thread slide or installation is not tight. To avoid short circuit or arcing, it's not suggested to fix two copper bus bars on the same side.

screw on load terminal	suggested thickness of copper bus bar	suggested hole dimension of copper bus bar	Torque
M6	5mm	Φ6.0mm～Φ6.5mm	6N.m～8N.m

10.In principle, please do not use it when the relay has fallen down.