



Powering Innovation



PROTECTION + AUTOMATION + CONTROL

**NUMERICAL, FOUR POLE, DIRECTIONAL / NON-DIRECTIONAL
INVERSE DEFINITE TIME,
3 O/C + 1 E/F RELAY WITH /WITHOUT INST. HIGHSET
JNP 098**

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FEATURES

- ◆ Programmable characteristic angle
- ◆ Programmable operating characteristics
- ◆ High speed directional control
- ◆ Low Burden.
- ◆ Trip test facility
- ◆ Choice of four inverse curve and definite time
- ◆ Programmable for directional / non-directional
- ◆ RS232 communication port
- ◆ RS485 communication port (optional)
- ◆ History of 5 latest faults
- ◆ Self supervision facility

Application

The relay provides time graded directional phase and earth fault protection of generators, transformers, capacitors, etc.



PRINCIPLE OF OPERATION

JNP 098 provides directional over current protection for power systems. The Relay operating time is determined by selecting definite time characteristics or one of the four inverse time characteristics i.e. (3s normal inverse, 1.3s normal inverse, very inverse and extremely inverse). The operating region is defined by the characteristic angle selected. The relay measures the current and voltage from each of the phases and if the phase angle in the operating zone of the relay, then the relay extends trip signal.

TECHNICAL DATA

RATINGS

Current rating	:	1A and 5A
Voltage rating	:	110V, 50Hz For Phase 63.5V, 50Hz For E/F
Auxiliary Supply	:	20 to 60V DC 75 to 150V DC 175 to 300V DC / 185 to 250V AC

SETTINGS

Inverse time curve	:	1) 3 Sec normal inverse curve 2) 1.3 Sec normal inverse curve 3) Very inverse curve 4) Extremely inverse curve
Definite time	:	0.1 to 25.0 Sec in steps of 0.1s
Directional Feature	:	Separate Choice of Active / Inhibit mode for over current & Hi-set.
Characteristic Angle	:	Phase - 30°, 45°, and 60° lead E/F - 12.5°, 30° and 45° lag

Over Current Setting	:	Phase - 50 to 200% in steps of 5 % E/F - 5 to 80% in steps of 1%
TMS	:	0.02 to 1.0 in steps of 0.01 (Separate for Phase & E/F)
Hi-set setting	:	Choice of Active / Inhibit Mode Phase - 200 to 3200% in steps of 100% E/F - 50 to 800% in steps of 50%
Programmable Reset Mode	:	Hand / Self Reset

OVER LOAD RATINGS

AC current input	:	2 times Rated continuous 20 times Rated for 3 secs. 40 times Rated for 1 sec.
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BURDEN

AC current input	:	0.1 VA Per phase (5A Rating) 0.05VA per Phase (1A Rating)
AC voltage input	:	2VA for all phases and E/F
Aux. Supply	:	Less than 4W (Non Operated) Less than 10W (Operated)

ACCURACY

Current protection	:	±5%
Operating Time	:	±5%

CONTACT RATINGS

Output contacts	:	10A at 24V DC / 230V AC
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CONTACTS DURABILITY

Loaded contact	:	10,000 operations minimum
Unloaded contact	:	100,000 operations minimum

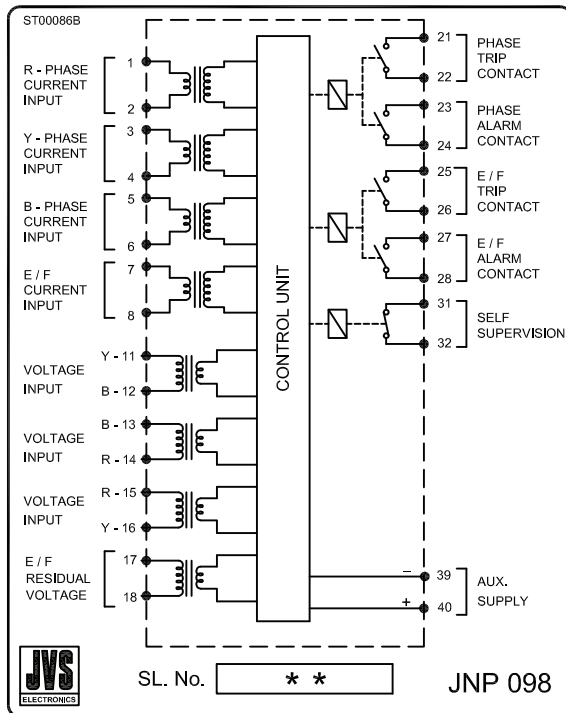
INSULATION

1. 2KV RMS, 50 Hz for 1 minute / 2.5 KV for 1 sec . Between all terminals and earth.
2. 1KV RMS, 50 Hz for 1 minute across open contacts.

MECHANICAL DESIGN

Weight	:	Approx. 7 Kgs.
Case Size	:	Fascia 152 x 296 mm, Depth 250 mm
Installation	:	Flush mounting
Panel cutout	:	146 x 264 mm

TERMINAL DIAGRAM



ORDERING INFORMATION

- Current rating : 1A or 5A
 Relay type : 1) JNP 098 (3O/C + E/F)
- Auxiliary Supply : 20 to 60V DC
 75 to 150V DC
 175 to 300V DC / 185 to 250V AC