

7PG26 DAD

High Impedance Relays

Document Release History

This document is issue 02/2010. The list of revisions up to and including this issue is:

Pre release

02/2010	Document reformat due to rebrand

Software Revision History

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1. GENERAL

Performance Data to IEC 255-3

2. CHARACTERISTIC ENERGIZING QUANTITY

AC Current In	1A or 5A
Frequency	50/60Hz
No. of Poles	3

3. AUXILIARY ENERGIZING QUANTITY

DC Power Supply	
Nominal	Operating Range
Vaux 24, 30, 48V	18V to 60V dc
Vaux 110, 220, 250V*	88V to 280V dc

* This variant will also operate from 110, 115, 120Vrms, 50/60Hz; full operating range 88V to 132V.

4. CHARACTERISTICS

4.1. Input Settings

Setting Current	0.5% to 96% of In in
Is	0.5% steps
Open Circuit CT	50Hz 10% to 40% in
Alarm Setting	/60Hz 10% of Is steps
Ia	

4.2. Operating Times

Delay (Alarm)	0.25s to 63.75s in 0.25s
Output	steps

Instantaneous (Trip) Output (X/R up to 100)

Multiple of Relay Setting	Typical Operating Time
2 x Is	21ms
3 x Is	14ms
5 x Is	12ms

5. ACCURACY REFERENCE CONDITIONS

General	IEC 255-3
Trip Setting	Any setting
Alarm Setting	Any setting
Overcurrent Input	3 x Is
DTL Time	21.25s
Frequency	50/60Hz
Ambient	20°C
Temperature	

6. ACCURACY

Operating Current (Starter)	100% \pm 5% of setting
Reset	\geq 95% of operating current
Instantaneous Operate Time	+5ms, -10ms of declared operating time
Delay Operate Time	\pm 1% or \pm 10ms
Repeatability	\pm 1%

7. ACCURACY GENERAL

DC Transient Overreach	\leq -15%
Disengaging Time	\leq 55ms
Alarm Overshoot	at 10% of I_s δ 80ms at 40% of I_s δ 40ms

8. ACCURACY INFLUENCING FACTORS

Temperature

Ambient Range	-25°C to +55°C
Setting Variation	\pm 1%

Frequency

Range	47Hz to 51Hz 57Hz to 61Hz
Setting Variation	\pm 5%
Operating Time Variation	\pm 0.5%

Auxiliary DC Supply - IEC 255-11

Allowable superimposed ac component	\leq 12% of dc voltage
Allowable breaks / dips in supply (collapse to zero from nominal voltage)	\leq 20ms

9. THERMAL WITHSTAND

Continuous and Limited Period Overload

2 x I_n	Continuous
3 x I_n	for 20 minutes
3.5 x I_n	for 10 minutes
4 x I_n	for 5 minutes
5 x I_n	for 3 minutes
6 x I_n	for 2 minutes

Short Term Overload

5A	350A for 1 sec 600A for 1 cycle
1A	65A for 1 sec 120A for 1 cycle

10. HARMONIC REJECTION

The relay will not operate on third or higher harmonics.

2nd harmonic rejection	2: 1 minimum
3rd harmonic rejection	50Hz, 40: I minimum 60Hz, 20: I minimum

11. BURDENS

11.1. AC Burden

Burdens expressed in volts.

1A rating, $V_s = 0.120 + 0.78 \times I_s$

5A rating, $V_s = 0.025 + 0.08 \times I_s$

11.2. DC Burden

	18V to 60V	88V to 280V
Quiescent	0.25W	0.65W
Short Term	5W	8W

12. OUTPUT CONTACTS

12.1. Contacts

Carry Continuously 5A ac or dc

Make and Carry

(limit L/Rs 40ms and V δ 300 volts)

for 0.5s 20A ac or dc

for 0.2s 30A ac or dc

Break

(limit δ 5A or δ 300V)

ac resistive	1250VA
ac inductive	250VA @ PF δ 0.4
dc resistive	50W
dc inductive	30W @ L/R = 40ms 50W @ L/R = 10ms

Minimum number of operations 1000 at maximum load

Minimum recommended load 0.5W, limits 10mA or 5V

Output Relay	RL1	RL2	RL3	RL4
Function	Trip	'A' Alarm	'B' Alarm	'C' Alarm
Contacts	2 NO	2 NO	2 NO	2 NO
Operation	Inst	DTL	DTL	DTL
Latched	No	Select*	Select*	Select*

*See section 5, figure 8, for RL2-RL4 latching settings.

Normally open contacts are wired via case trip isolation contacts.

12.2. Indication

Two red LED's per phase are provided for TRIP and ALARM.

The alarm LED is illuminated when the alarm is exceeded and is latched on completion of the set time delay. Prior to the expiry of the time delay it resets when the input falls below the alarm setting.

Indications are retained in memory during breaks in the auxiliary supply and re-established when the supply is restored. Latched output contacts and indications are both reset from the case reset push. The reset action also tests all the LED's by momentarily illuminating them.

13. ENVIRONMENTAL WITHSTAND

Temperature - IEC 68-2-1/2

Operating range	-10°C to +55°C
Storage range	-25°C to +70°C

Humidity- IEC 68-2-3

Operational test	56 days at 40°C and 95% RH
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Transient Overvoltage - IEC 255-5

Between all terminals and earth or between any two terminals without damage or flashover	5kV 1.2/50µs, 0.5J
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Insulation - IEC 255-5

Between any terminal and earth	2.0kV rms for 1 min
Between independent circuits	2.0kV rms for 1 min
Across normally open contacts	1.0kV rms for 1 min

High Frequency Disturbance - IEC 255-22-1 Class III

	Variation
2.5kV Common (Longitudinal) Mode	≤ 5%
1.0 kV Series (Transverse) Mode	≤ 1%

Electrostatic Discharge - IEC 255-22-2 Class III

8kV Contact Discharge	no maloperation
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Radio Frequency Interferences - IEC 255-22-3 Class III

	Variation
20MHz to 1000MHz, 10V/m	≤ 5%

Fast Transient - IEC 255-22-4 Class IV

	Variation
4 kV 5/50ns	≤ 5%

Vibration (Sinusoidal) - IEC 255-21-1

Vibration response	0.5gn	Variation	≤ 5%
Vibration endurance	2gn		no maloperation

Shock and Bump - IEC 255-21-2 Class I

Shock response	5gn 11ms	Variation	≤ 5%
Shock withstand	15gn 11ms		≤ 5%
Bump test	10gn 16ms		≤ 5%

Seismic - IEC 255-21-3 Class I

Seismic response	1gn	Variation	≤ 5%
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Mechanical Classification

Durability	In excess of 10 ⁶ operations
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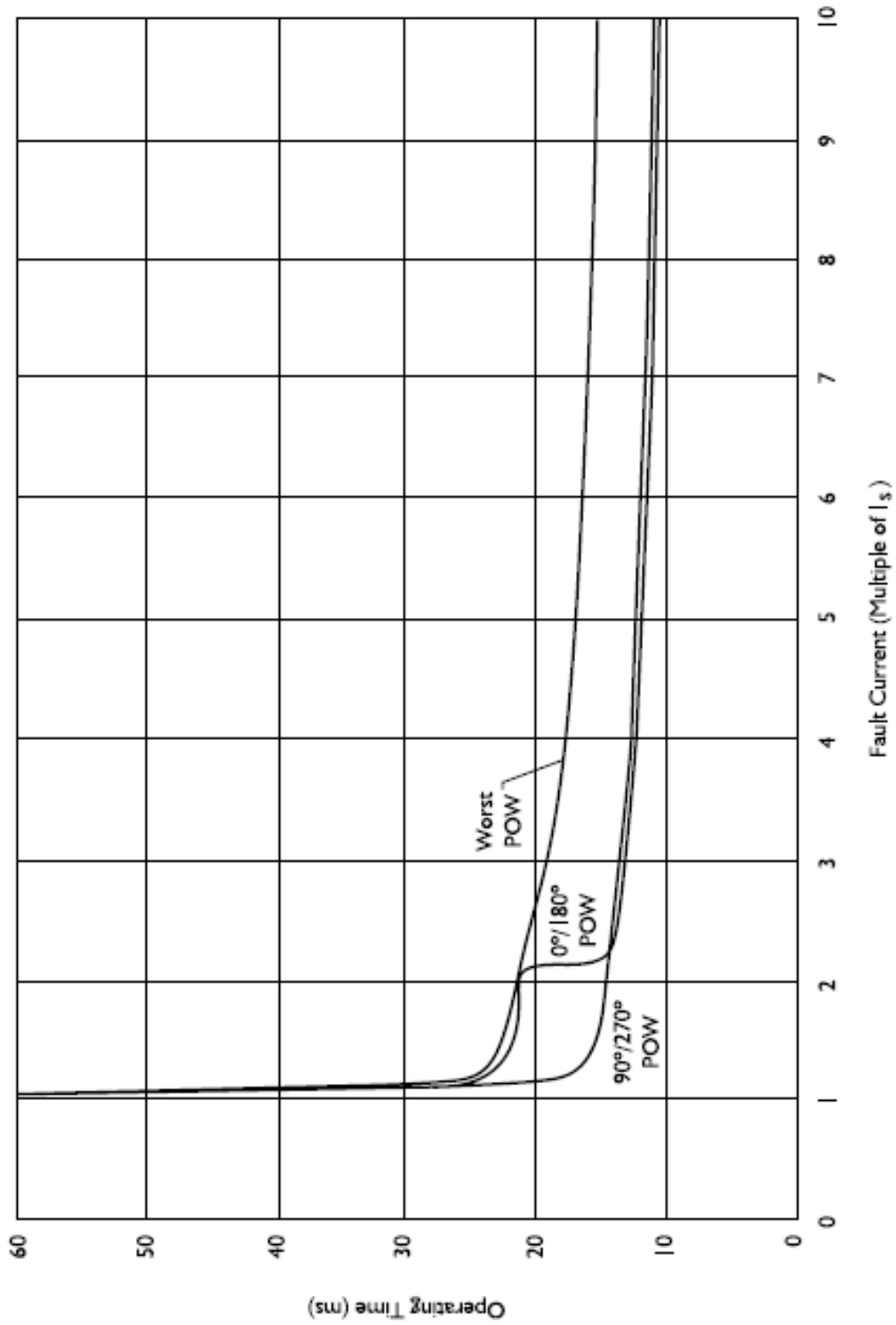


Figure 1 Trip Characteristic (X/R = 100)

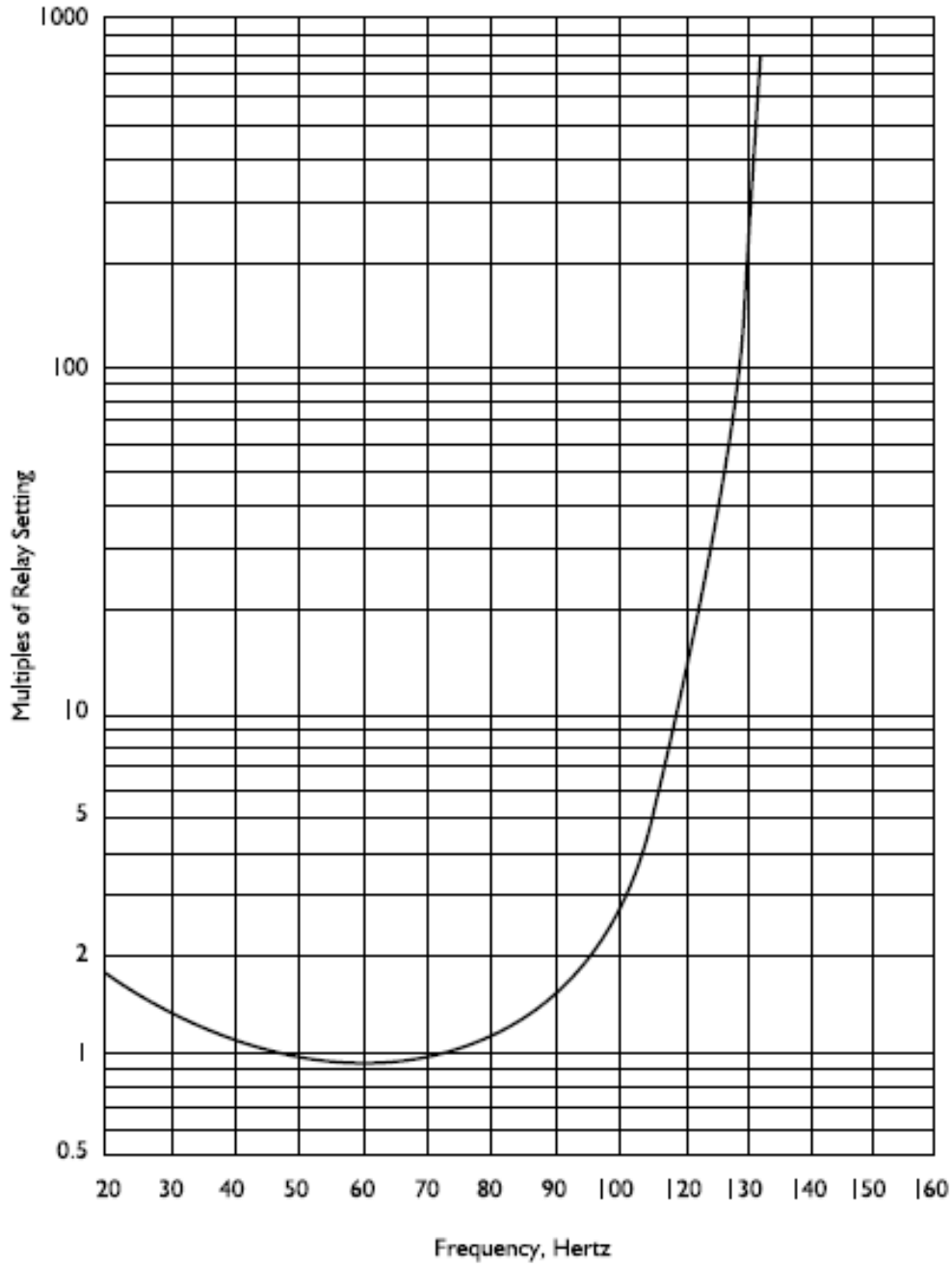


Figure 2 Harmonic Rejection Characteristic