

7PG21 Solkor Rf

Feeder Protection

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

2 Characteristic Energising Quantity

Rated Current (I _n)	0.5A 1A 2A 5A 6.67A
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Auxiliary DC Supply	Not required for Solkor R/Rf, required for Pilot Supervision, intertripping and guard only.
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Rated Frequency (f _N)	Operating Range
50 Hz	47Hz to 52Hz
60Hz	57Hz to 62Hz

3 Application Limits

Number of Pilot cores required 2

Pilot Requirements

	R Mode	Rf Mode	Rf mode with 15kv Transf.		
			Tap 1	Tap 0.5	Tap 0.25
Max. Loop Resistance	1000 Ω	2000 Ω	1780 Ω	880 Ω	440 Ω
Max. Inter core Capacitance	2.5μF	0.8 μF	1 μF	2 μF	4 μF

Pilot Current and Voltage

	R Mode	Rf Mode	Rf mode with 15kv Transf.		
			Tap 1	Tap 0.5	Tap 0.25
Peak Voltage applied to pilots under fault conditions	300v	450v	450v	330v	225v
Maximum current carried by pilots under fault conditions	200mA	250mA	250mA	380mA	500mA

Maximum Primary Line Capacitive Charging Current.

Solidly Earthed System, 1/3 times the most sensitive earth fault setting

Resistance Earthed System, 1/9 times the most sensitive earth fault setting

4 Performance

4.1 Solkor R/Rf Relay

Insulation

Between pilot circuit and all other independent circuits and earth	5kV rms
Between all external terminal and earth	2kV rms
Between terminals of independent circuits	2kV rms
Across normally open contacts	1kV rms
Isolation Transformer Between pilot circuit terminals and all other terminals and earth	15kV rms

Maximum through fault condition for stability

50x rated current

Thermal Withstand (AC current)	Multiple of rated current
Continuous	2x
20 minutes	2.8x
10 minutes	3.5x
5 minutes	4.7x
3 minutes	6.0x
2 minutes	7.3x
3 seconds	60x
1 second	100x limited to 400A

Operating Time	R Mode	5kV Rf Mode	15kV Rf Mode
3x fault setting	60ms		
5x fault setting		45ms	40ms
10x fault setting	45ms		

Indication	Hand Reset Flag
Contact Arrangement	3 N/O
Contact Rating	Make and carry for 0.2s a burden of 6600VA with a maximum of 30A

	R Mode	Rf Mode
Maximum output of CT required to operate relay	1.2VA	3VA

4.2 Pilot Supervision Equipment

Auxiliary Supply	
Send End	110/220/240V ac 50/60Hz
Receive End	30V dc 50V dc 125V dc 240V dc

Burdens

AC Supervision Supply	10VA approx.
AC supply fail relay	3 to 5VA
Receive Repeat Relay	1W

Contact Arrangements

Pilot Supervision Relay(B75)	1NO self reset
Repeat relay B74	2NO & 2NC
Supervision supply fail relay	2NO & 2NC

Contact Ratings

Type B22, B74 and B75

Make & Carry Continuously	1500VA ac or 1500W dc within limits of 660V and 3A. Make and carry 8A for 3 secs or 16A for 1 second.
Break	300VA ac or 75W dc (inductive L/R -0.04) within limits of 250V and 5A

Indication	Flag indicators shown on de-energisation
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Supervision supply fail relay (B22)	Hand Reset Flag
Receive Repeat Relay	Self Rest Flag

Timing

B74 Repeat Element

Delay on drop off 400ms+-10%

4.3 Injection Intertripping

Rating Vx, 110-125V dc

Burden 1A at 125V dc full output

400mA with economy resistor

5 Environment

5.1 Temperature

IEC 60068-2-1/2

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

5.2 Humidity

IEC 60068-2-3

Type	Level
Operational test	56 days at 40 °C and 95 % relative humidity

5.3 IP Ratings

Type	Level
Installed with cover on	IP 51
Installed with cover removed	IP 30

6 Mechanical Durability

Vibration, relays comply with BS142 section 2.1 Category S2.

Shock, relays withstand 20G shock or impact on the panel without operating

Operation/mechanical life, relays will withstand in excess of 10,000 operations.