Smart solutions.
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Over Current & Earth Fault Protection Relay

Description

The 'CGI 14N/C' Numerical Protection Relay is a fully digital relay based on microprocessor technology with analog to digital conversion of the measured values and subsequent numerical processing. It uses specialized digital signal processor (DSP) as the computational hardware, along with associated software.

The relay has a feature of IDMT as well as instantaneous protection for both over current & earth elements with breaker failure protection. The relay can be field programmed as 3O/C+ 1E/F or 2 O/C+1E/F+1SE/F or 1RE/F (optional) or SE/F (Definite Time Function only). The front panel features keypad & a 16x2 LCD display that provides an easy user interface.

Features

- Breaker Failure Detection.
- Communication Ports: RS485 / RS232.
- Communication Protocols: MODBUS-RTU & IEC 60870-5-103.
- Programming through local keypad.
- Selectable Definite Time or IDMT curves as per IEC standards.
- Rated input current selectable 1A or 5A.
- Password protection to guard against unauthorized access & editing of settings.
- Recording of latest 10 fault records with time stamping.
- Mounting / Case: Drawout / Non Drawout.
- Trip Circuit Supervision through digital input.

Protection Functions

ANSI Code	IEC Symbol	Function Name
50/51	3I>,3I>>	Over Current Protection
50N/51N	Io>,Io>>	Earth Fault Protection
50S	ISEF>	Sensitive Earth Fault Protection
64	IREF>	Restricted Earth Fault Protection
50BF	CBFP	Breaker Failure Protection

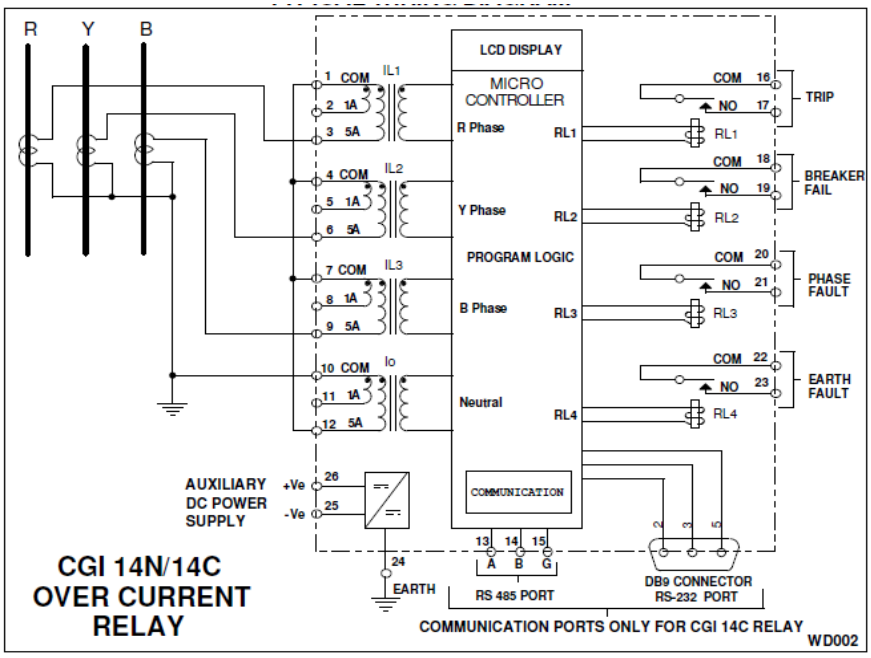
Applications

- Primary circuit protection on distribution networks at any voltage level.
- Backup/auxiliary protection for transformers, generators and motors.

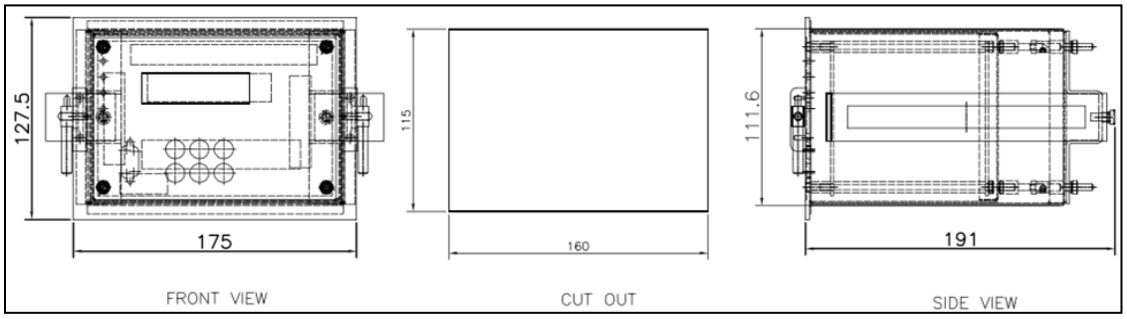
Technical Specifications

Measuring Circuitry	
Rated Current (In)	1A or 5A(Programmable), 50Hz
Auxiliary Power Supply	18 to 52V DC / 24 to 110 VDC / 75 to 250V DC
Over Load Capacity	2 x In continuously
	20 x In for 1 sec
Relay Settings	
Phase Fault I> (51)	5% to 200% (In steps of 1%)
Phase Fault I>> (50)	50% to 3000% (In steps of 1%)
Earth Fault Io> (51N)	5% to 200% (In steps of 1%)
Earth Fault Io>> (50N)	50% to 3000% (In steps of 1%)
ISEF> (50S)	1% to 95% (In steps of 1%)
IREF> (64)	1% to 95% (In steps of 1%)
Current/Time Characteristics As per IEC 60255-3	a) Standard Inverse (SI 3) 3s @ 10 times
	b) Standard Inverse (SI 1) 1.3s @ 10 times
	c) Very Inverse (VI) 1.5s @ 10 times
	d) Extremely Inverse (EI) 0.8s @ 10 times
	e) Long Time Inverse (LTI) 13.33s @ 10 times
	f) Definite Time (DT) upto 99.9s
Instantaneous Delay	0.02 sec to 2.0 sec (In steps of 10ms)
Pickup Current	110% of set current
Reset Current	90% of set current
Reset Delay	0.0 to 2.0s (In steps of 100ms)
Breaker Failure Time	200ms to 1000ms (In steps of 100ms)
Burden	Less than 0.2 VA / phase at CT input
	Less than 6W at Auxiliary Power supply
Indications	4 /8 LED Indications for Power on, Alarm, Trip & Error, etc.
	16x2 character LCD for parameter display & settings
Communication	
Communication Ports	Front Port: RS-232 / USB (Protocol: Proprietary) Rear Port : RS-485 (Protocol: MODBUS / IEC 103)
Communication Protocols	MODBUS-RTU & IEC 60870-5-103
Output Contact Rating	
Rated Voltage	250 V AC / 30 V DC
Rated Current	16A for Trip relay and 5A for other relays
Rated Breaking Capacity	2000VA

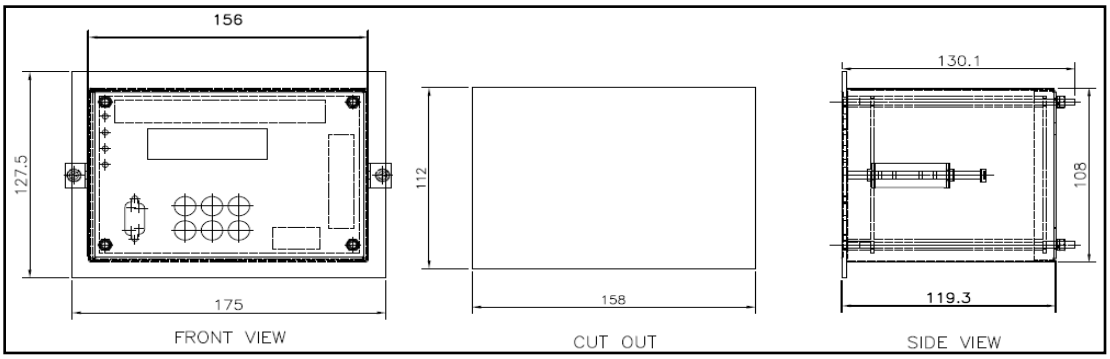
Typical Wiring Diagram: 3OC + 1EF



Dimensions (in mm)



Note: Dimensions mentioned above are applicable only for regular Drawout CGI 14C/N relay.



Note: Dimensions mentioned above are applicable only for regular Non-drawout CGI 14C/N relay.

Ordering Information for CGI 14 Overcurrent Protection Relays

CGI 14	☐	☐	☐	☐	☐	☐	☐	☐
RELAY TYPE								
Communicable	**C**							
Non Communicable	**N**							
CASE								
Non Drawout		**A**						
Drawout		**B**						
AUXILIARY POWER SUPPLY								
18-52VDC			**L**					
75-250VDC			**H**					
24-110 VDC			**M**					
PROTECTION CONFIGURATION								
3 OC + 1 EF				**1**				
3 OC + 1 REF				**2**				
3OC + 1 SEF				**3**				
2OC + 1 EF + 1 REF				**4**				
2OC + 1 EF + 1 SEF				**5**				
1 SEF				**6**				
1 REF				**7**				
MEASURING CT CONNECTION								
1 A					**1**			
5 A					**2**			
1A/5 A (Separate terminals for 1A/5A)					**3**			
1A/5 A (Common terminals for 1A/5A)					**4**			
COMMUNICATION PROTOCOL								
Front port & Rear Port both IEC 103						**B**		
Front port & Rear Port both MODBUS						**C**		
Front Port CG View & Rear Port IEC 103						**D**		
Front Port CG View & Rear Port MODBUS						**E**		
Rear Port MODBUS						**I**		
COMMUNICATION INTERFACE								
Front: RS232 Port , Rear: RS485 Port							**1**	
Front: USB Port , Rear: RS485 Port							**2**	
Front: RS232 Port							**3**	
Rear: RS485 Port							**4**	
DIGITAL INPUT & DIGITAL OUTPUT CONFIGURATION								
4 NO Contacts								**F**
2 DI + 4 NO Contacts								**G**
4 DI + 4 NO Contacts								**J**
4 DI + 8 NO Contacts								**K**
2 DI + 4 NO Contacts + 1 Change Over Contacts								**N**
1 NO + 1 NC Contacts								**O**
4 DI + 4 NO Contacts + 1 Change Over Contacts								**P**
4 NO Contacts + 1 Change Over Contacts								**Q**
5 DI + 4 NO Contacts + 1 Change Over Contacts								**R**
1 NO Contacts + 4 Change Over Contacts								**S**
4 DI + 6 NO Contacts + 1 Change Over Contacts								**T**

NOTE: CG continuously strives to improve products & services. The technical information included in this document is subject to change without any notice.

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