Grid Solutions

269 PLUS



Motor Protection System

Integrated Protection and Control for Medium Sized AC Motors

Key Benefits

- Enhanced Thermal Model including current unbalance and RTD biasing
- Temperature monitoring with programmable RTD inputs for Stator, Bearing and Ambient temperature protection
- Reduce troubleshooting time and maintenance costs – motor running and learned data, last trip data
- Simplify testing - Built in simulation features
- Cost Effective Access to information through standard RS485 serial ports using Modbus RTU
- Field upgradable settings and firmware
- Installation flexibility - Remote display and drawout case options

Applications

- Medium size motors

Features

Protection and Control

- Thermal model biased with RTD and negative sequence current feedback
- Stator winding & bearing overtemperature
- Motor multiple starts
- 8 standard overload curves
- User defined overload FlexCurve™
- Undercurrent for load loss
- Locked rotor
- Rapid trip/mechanical jam
- Unbalance/single phasing
- Short circuit
- Ground fault
- Phase reversal (meter option)
- Variable lock-out time
- Latched main trip relay, alarm relay
- 2 auxiliary relays
- Emergency restart capability
- Pre-trip alarm warnings

Monitoring and Metering

- Current & Thermal Capacity metering
- Data Logger
- Learned & Statistical Data
- Optional voltage, power metering

Inputs and Outputs

- 12 RTDs, programmable
- 5 factory programmed digital inputs
- 4 output relays
- 1 programmable analog output

EnerVista™ Software

- State of the art software for configuration and commissioning GE Vernova Multilin products
- Document and software archiving toolset to ensure reference material and device utilities are up-to-date
- EnerVista™ Integrator providing easy integration of data in the 269 Plus into new or existing monitoring and control systems

GE VERNOVA

Technical Specifications

PROTECTION

PHASE CURRENT INPUTS

Conversion:	Calibrated RMS, sample 2 ms
Range:	0.05 to 12 x phase CT primary amps setpoint
Full scale:	12 x phase CT primary amps setpoint
Accuracy:	±0.5% of full scale (0.05 to 2 x phase CT primary amps setpoint) ±1.0% of full scale (over 2 x phase CT primary amps setpoint)
Frequency:	20 – 400 Hz

GROUND FAULT CURRENT INPUT

Conversion:	Calibrated RMS, sample time 2 ms
Range:	0.1 to 1.0 x G/F CT primary amps setpoint (5 A secondary C.T.) 1.0 to 10.0 A, 50:0.025 A (2000:1 ratio)
Full Scale:	1 x G/F CT primary amps setpoint (5 A secondary C.T.) 10 A (2000:1 C.T.)
Accuracy:	±4% of G/F CT primary amps setpoint (5 A secondary C.T.) ±0.3 A primary (2000:1 C.T.)
Frequency:	20 – 400 Hz, for 5 A CTs 20 to 150 Hz for 2000:1 CTs

OVERLOAD CURVES

Trip Time Accuracy:	±1 sec up to 13 sec ±8% of trip time over 13 sec
Detection Level:	±1% of primary CT amps

RELAY LOCK-OUT TIME

Accuracy:	±1 min with control power applied ±20% of total lock-out time with no control power applied

UNBALANCE

Display Accuracy:	±2 percentage points of true negative sequence unbalance (In/Ip)

EXPONENTIAL COOLDOWN

Accuracy:	±2% of true exponential

RUNNING HOURS COUNTER

Accuracy:	±1%

POWER SUPPLY

CONTROL POWER

Input	LO: 20 – 60 VDC 20 – 48 VAC: 50/60 Hz HI:80 – 300 VDC 65 – 265 VAC: 50/60 Hz
Maximum power consumption:	20 VA
Holdup:	100 ms (@ 120 VAC/125 VDC)

INPUTS

RTD INPUTS

Sensor types:	10 Ω copper 100 Ω nickel 120 Ω nickel 100 Ω platinum (specified with order)
Display accuracy:	±2°C
Trip/alarm setpoint range:	0 – 200°C
Dead band:	3°C
Maximum lead resistance:	25% of RTD 0°C resistance

OUTPUTS

RELAY CONTACTS

Voltage		M/C cont.	M/C 0.2 sec	Break
AC resistive	30 VDC	10 A	30 A	10 A
	125 VDC	10 A	30 A	0.5 A
	250 VDC	10 A	30 A	0.3 A
DC inductive (L/R = 7 ms)	30 VDC	10 A	30 A	5 A
	125 VDC	10 A	30 A	0.25 A
	250 VDC	10 A	30 A	0.15 A
AC resistive	120 VAC	10 A	30 A	10 A
	250 VAC	10 A	30 A	10 A
AC inductive PF=0.4	120 VAC	10 A	30 A	4 A
	250 VAC	10 A	30 A	3 A
Configuration:	Form C NO/NC			
Contacts:	Silver Alloy			
Minimal permissible load:	5 VDC, 100 mA; 12VAC, 100 mA			

ANALOG CURRENT OUTPUT (4 – 20 mA STANDARD)

	Programmable		
Output	0-1 mA	0-20 mA	4-20 mA
Max load	2000 Ω	300 Ω	300 Ω
Max output	1.01 mA	20.2 mA	20.2 mA

Accuracy	±1% of full scale reading
Polarity	Terminal 58 ("–") must be at ground potential (ie. output is not isolated)
Isolation	Non-isolated, active source
Update time:	250 ms max

PRODUCTION TESTS

DIELECTRIC STRENGTH TEST

2200 VAC, 50/60 Hz, for 1 sec
Ground (terminal 42) to Output contacts (terminals 29 to 40)
Control power (terminals 41 and 43)
Current transformer inputs (terminals 72 to 83)

**Specifications subject to change without notice.*

CT BURDEN DUE TO CONNECTION OF 269 PLUS RELAY

	CT input	Burden	
Phase CT (1 A)	(A) 1 A	(VA) 0.04	(mΩ) 43
	4 A	0.5	31
	13 A	4.8	28
Phase CT (5 A)	5 A	0.06	2.4
	20 A	1	2.5
	65 A	8.5	2.01
G/F CT (5 A)	5 A	0.08	3
	10 A	0.3	3
G/F CT (50:0.025)	0.025 A	0.435	696 Ω
	0.1 A	3.29	329 Ω
	0.5 A	50	200 Ω

ENVIRONMENTAL

Operating temperature range:	-25°C to +60°C
Humidity:	Up to 95%, non-condensing
Altitude:	Up to 2000 m
Pollution degree:	2

TYPE TESTS

Dielectric strength:	2.0 kV for 1 min to relays, CTs, power supply
Insulation resistance	IEC 255-5, 500 VDC
Transients:	ANSI C37.90.1 oscillatory 2.5 kV/1 MHz ANSI C37.90.1 fast rise 5 kV/10 ns Ontario Hydro A-28M-82 IEC255-4 impulse/high frequency disturbance Class III level
Impulse test:	IEC 255-5 0.5 J 5 kV
RFI:	50 MHz/15 W transmitter
EMI:	C37.90.2 electromagnetic interference @ 150 MHz and 450 MHz, 10 V/m
Static:	IEC 801-2 static discharge
Humidity:	95% non-condensing
Temperature:	-25°C to +60°C ambient
Environment:	IEC 68-2-38 temperature/ humidity cycle
Dust/ moisture:	NEMA 12/IP53

Ordering

269 PLUS	*	*	*	*	*	*				
269 PLUS							269 Plus motor management relay®			
	SV						Standard version			
	D/O						Drawout version			
							Phase CT[1]	**Ground CT (required for D/O only)**		
		1					:5	2000:1		
		2					:5	:5		
		3					:1	2000:1		
		4					:1	:5		
							Relay fail safe code[2] (required for D/O only)			
							Trip	Alarm	Aux 1	Aux 2
			1				FS	NFS	NFS	FS
			2				NFS	FS	NFS	FS
			3				FS	FS	NFS	FS
			4				NFS	NFS	FS	FS
			5				FS	NFS	FS	FS
			6				NFS	FS	FS	FS
			7				FS	FS	FS	FS
			8				NFS	NFS	NFS	FS
							Relay contact arrangement[3] (required for D/O only)			
							Alarm	Aux 1	Aux 2	
				1			N.O.	N.O.	N.O.	
				2			N.O.	N.O.	N.C.	
				3			N.O.	N.C.	N.O.	
				4			N.O.	N.C.	N.C.	
				5			N.C.	N.O.	N.O.	
				6			N.C.	N.O.	N.C.	
				7			N.C.	N.C.	N.O.	
				8			N.C.	N.C.	N.C.	
					100P		100 Ohm platinum RTD			
					10C		10 Ohm copper RTD			
					100N		100 Ohm nickel RTD			
					120N		120 Ohm nickel RTD			
						HI	80 – 300 VDC/65 – 265 VAC control power			
						LO	20 – 60 VDC/20 – 48 VAC control power			

For more information, visit
gevernova.com/grid-solutions

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