



MPM

MOTOR PROTECTION METERING SYSTEM

Additional, continuous metering
of motors via the 269 or 269 Plus
Motor Protection System.

9

KEY BENEFITS

- Provides additional motor metering functionality to a 269 or 269 Plus
- Complete metering & monitoring - High accuracy, mid-range Power Quality with many advanced features
- Ease of use, program and set up - Includes EnerVista setup and metering software
- Cost Effective Access information - Through Modbus RTU protocol over RS485 communication capability, allows easy integration to EnerVista or third party systems

APPLICATIONS

- Continuous metering of motors via a 269 Motor Protection System

FEATURES

Additional protection with 269 combination

- kvar limit
- Voltage phase reversal
- Under/overvoltage alarm/trip
- Power factor alarm/trip (lead/lag)
- MPM communication failure alarm Overload (15 selectable curves)

Monitoring Data displayed by 269

- 3 phase voltage
- Average voltage
- Power factor
- Real power (kW)
- Reactive power (kvar)
- Power consumption (MWh)
- Frequency (Hz)

Inputs and Outputs

- Four 0-1 mA (A1 option) or 4-20 mA (A20 option) outputs of:
 - Average current (Amps)
 - 3 phase real power (kW)
 - 3 phase reactive power (kvar)
 - Power factor
- Fail-safe form-C dry contact output relay
- VT wiring configuration selection

User Interface

- RS485 serial port

Features

Mounting Versatility

Due to the compact size of the MPM, it is especially practical for applications where mounting space is limited. The MPM is a “black box” unit which uses serial communications to transmit/ receive data to and from the 269/269 Plus. Therefore, it can be mounted inside the switchgear or in a location where there is more room available. A single twisted pair communication wire is routed to the 269/269 Plus.

Connectivity

To obtain optimum accuracy, metering class CTs should be employed. In applications where mounting space and/or cost is an issue, the relaying class CTs used with the 269/269 Plus can be connected in series with the MPM.

Inputs/Outputs

The MPM comes complete with four isolated 4 to 20 mA (A20 option) or 0 to 1 mA (A1 option) analog outputs which are permanently configured to provide an output based on average current, real power (kW), reactive power (kvar), and power factor respectively.

The MPM also comes complete with a powered Form C Fail-safe output relay. This relay can be used to indicate if the MPM is on or off. The relay will also change state if a self-diagnostic failure is detected in the MPM.

MPM Technical Specifications

METERING			
CURRENT INPUTS			
Conversion:	True RMS, 64 samples/cycle		
CT input:	1 A and 5 A secondary		
Burden:	0.2 VA		
Overload:	20 x CT for 1 sec		
	100 x CT for 0.2 sec		
Full scale:	150% of CT		
Frequency:	up to 32nd harmonic		
MEASURED VALUES			
PARAMETER	ACCURACY [% OF DISPLAY]	RESOLUTION	RANGE
VOLTAGE	±1%	1 V	20% OF VT TO 100% OF VT
CURRENT	±1%	1 A	1% OF CT TO 150% OF CT
kW	±2%	1 kW	0 – 65535 kW
kvar	±2%	1 kvar	0 – 65535 kvar
MWh	±2%	1 MWh	0 – 65535 MWh
POWER FACTOR	±2%	0.01	±0.0 – 1.0
FREQUENCY	±0.2%	0.1 Hz	20.00 – 70.00 Hz

OUTPUTS			
ANALOG OUTPUTS			
Accuracy:	±2% of full scale		
OUTPUT			
Option	0 – 1 mA (A1 Option)	4 – 20 mA (A2)	
Max Load	2400 Ω	600 Ω	
Max Output	1.1 mA	21 mA	
Isolation:	50 V isolated, active source		
OUTPUT RELAY			
VOLTAGE	MAKE/CARRY CONTINUOUS	MAKE/CARRY 0.2 sec	BREAK
RESISTIVE 30 VDC	5	30	5
RESISTIVE 125 VDC	5	30	0.5
RESISTIVE 250 VDC	5	30	0.3
INDUCTIVE 30 VDC	5	30	5
INDUCTIVE 125 VDC	5	30	0.25
INDUCTIVE 250 VDC (Vr=7ms)	5	30	0.15
RESISTIVE 120 VAC	5	30	5
RESISTIVE 250 VAC	5	30	5
INDUCTIVE 120 VAC	5	30	5
INDUCTIVE 250 VAC	5	30	5
PF = 0.4	5	30	5
CONFIGURATION	FORM C NO/NC		
CONTACT MATERIAL	SILVER ALLOY		

INPUTS	
VOLTAGE INPUTS	
Conversion:	True RMS, 64 samples/cycle
Input range:	20 – 250 VAC
Full scale:	150/600 VAC autoscaled
Burden:	<0.1 VA
Frequency:	up to 32nd harmonic
COMMUNICATIONS	
COM1 type:	RS485 2 wire, half duplex, isolated
Baud rate:	1,200
Protocol:	269/269 Plus

POWER SUPPLY	
CONTROL POWER	
Input:	90 – 300 VDC/70 – 265 VAC 50/60 Hz (HI option) 20 – 60 VDC/20 – 48 VAC 50/60 Hz (LO option)
Power:	10 VA nominal, 20 VA maximum
Holdup:	100 ms typical

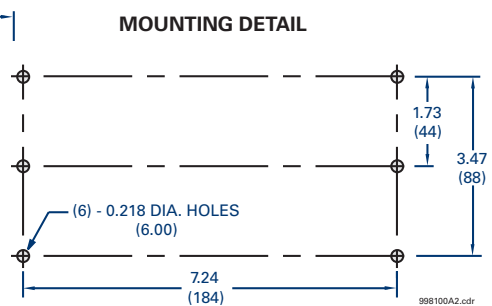
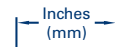
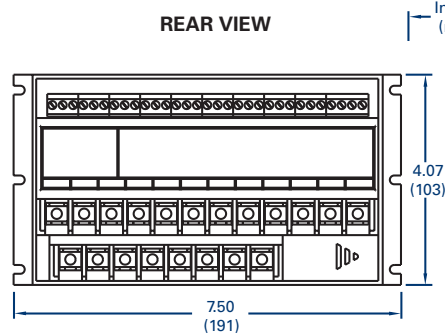
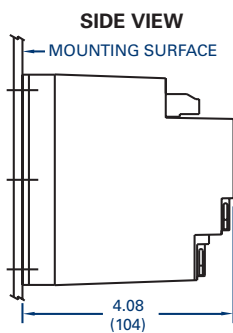
TYPE TESTS	
Dielectric strength:	2.0 kV for 1 min to relay, CTs, VTs, power supply
Insulation resistance:	IEC255-5 500 VDC
Transients:	ANSI C37.90.1 oscillatory 2.5 kV/1 MHz ANSI C37.90.1 fast rise 5 kV/10 ns Ontario Hydro A-28M-82 IEC255-4 impulse/high frequency disturbance Class III Level
Impulse test:	IEC 255-5 0.5 J 5 kV
RFI:	50 MHz/15W 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:	-10° C to +60° C ambient
Environment:	IEC 68-2-38 temperature/humidity cycle

PACKAGING	
Shipping box:	8 1/2" x 6" x 6" (L x H x D) 215 mm x 152 mm x 152 mm (L x H x D)
Ship weight:	5 lbs/2.3 kg

APPROVALS	
ISO:	Manufactured to an ISO9001 registered program
UL:	Recognized under E83849
CSA:	Recognized under LR41286
CE:	Conforms to IEC 947-1

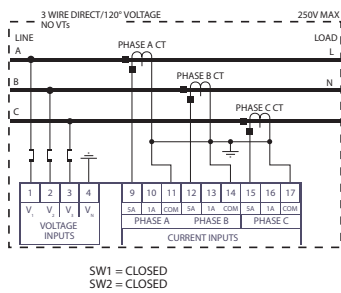
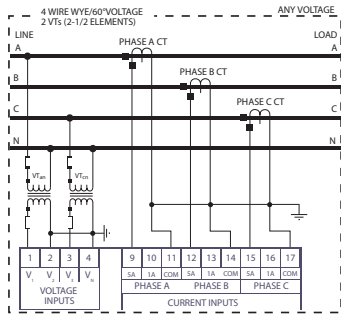
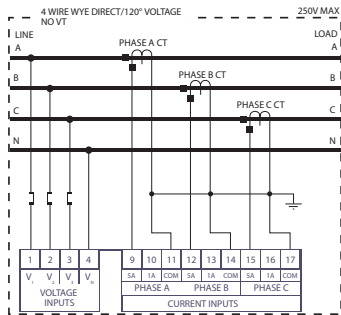
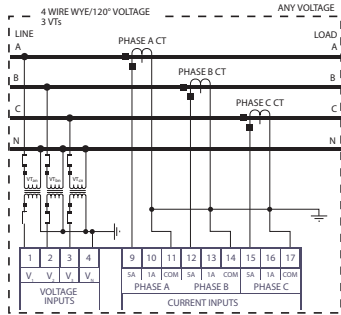
*Specifications subject to change without notice.

Dimensions

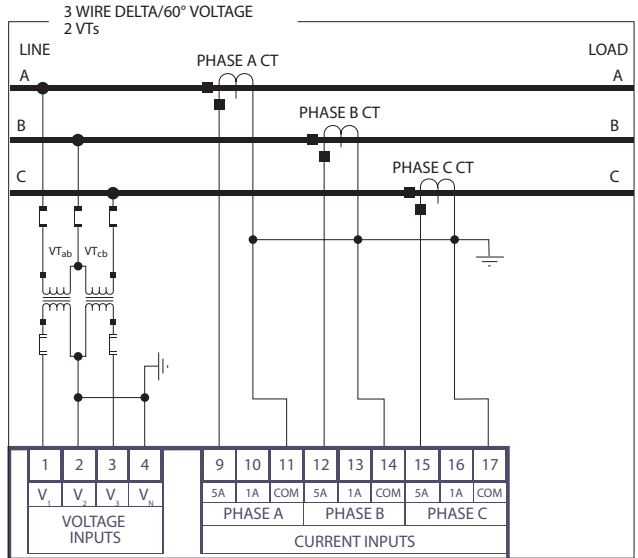
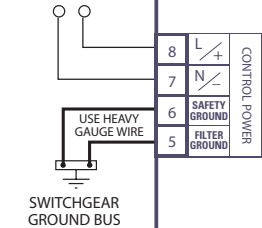


Typical Wiring

ALTERNATIVE CT/VT CONNECTIONS



HI OPTION	90-300 VDC
	70-265 VAC 50/60 Hz
LO OPTION	20-60 VDC
	20-48 VAC 50/60 Hz



Multilin MPM
Motor Protection Metering System

1	2	3	4	9	10	11	12	13	14	15	16	17
V _a	V _b	V _c	V _n	5A	1A	COM	5A	1A	COM	5A	1A	COM
VOLTAGE INPUTS				CURRENT INPUTS								
				PHASE A			PHASE B			PHASE C		

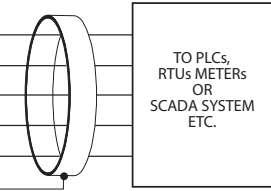
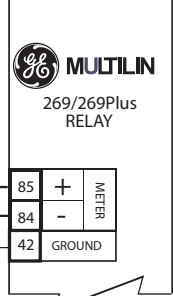
8	L/+	CONTROL POWER
7	N/-	CONTROL POWER
6	SAFETY GROUND	
5	FILTER GROUND	

45	NO	OUTPUT RELAY
44	COM	OUTPUT RELAY
43	NC	OUTPUT RELAY

RS485	269	+	48
		-	47
		COM	46

ANALOG OUT	AMP	1+	28
	KW	2+	27
	KVARS	3+	26
	PF	4+	25
	COM		24
	SHIELD		21

33	SW COM	SWITCH INPUTS
32	SW1	SWITCH INPUTS
31	SW2	SWITCH INPUTS



ANALOG OUTPUTS	
OPTION	TYPE
A20	4-20mA
A1	0-1mA

MPM CONFIGURATION		
CONNECTION	SW1	SW2
DELTA	OPEN	OPEN
4 WIRE, 3VT	CLOSED	OPEN
4 WIRE, 2VT	OPEN	CLOSED
DELTA DIRECT	CLOSED	CLOSED

NOTES:
1) Relay contact state shown with control power not applied.

CAUTION: USE HRC FUSES FOR VT PRIMARY TO ENSURE ADEQUATE INTERRUPTING CAPACITY.

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Features

CT INPUTS:
3 isolated phase CT inputs
1 Amp or 5 Amp secondary

VT INPUTS:
0-250V, 3 wire or 4 wire voltage inputs.
Direct (up to 250V) or VT (>250V for isolation) connections.

AC/DC CONTROL POWER
Universal control power
90-300 VDC/70-265 VAC (HI option)
20-60 VDC/20-48 VAC (LO option)

GROUND:
Separate safety and filter ground
All inputs meet C37.90 and IEC 801-2
EMI, SWC, RFI interference immunity.

ANALOG OUTPUTS
4 isolated 0-1mA(A1 option) or 4-20 mA (A20 option) outputs assigned to average current, real power, reactive power and power factor.

SWITCH INPUTS
1 } For VT connection selection
2 }

OUTPUT RELAY
One form-c failsafe output relay

COMMUNICATIONS
RS485, isolated, communications port to transmit and receive data from the 69

FUSE ACCESS
Control power fuse accessible under sliding door.

COMPACT DESIGN
Panel or chassis mount replaces many discrete components with one standard model.

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MPM Guideform Specifications

For an electronic version of the MPM guideform specifications, please visit: www.GEMultilin.com/specs, fax your request to 905-201-2098 or email to literature.multilin@ge.com.

Ordering

MPM	*	*	
MPM			Basic unit, all current/voltage/power measurements, 1 269/269 Plus comm port, Fail-safe Form C output relay
	LO		20 - 60 VDC, 20 - 48 VAC 50/60 Hz
	HI		90 - 300 VDC, 70 - 265 VAC 50/60 Hz
		A1	Four 0 - 1 mA analog outputs
		A20	Four 4 - 20 mA analog outputs

Guideform Specifications
Available Online or from your Sales Representative.
www.GEMultilin.com

Accessorize your MPM
www.GEMultilin.com

Consider upgrading up to a 369, which combines the MPM Motor Protection Metering System and 269 or 269 Plus Protection System into one package.
www.GEMultilin.com