

MAGNEY  GRANDE



PRODUCT CATALOG






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Complete Solutions For All Oilfield Applications



Surge Protective Devices

- Medium Voltage SPDs (1000-5000V)
- VFD SPDs (all HP and kVA)
- Voltage Divider

Consulting

- Equipment Optimization and Longevity
- Teardowns and RCFA
- Power Quality Studies
- Tender Review
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Customized Products

- Surge Protective Devices
- Grounding Systems
- ARC Flash Mitigation
- Power Monitoring

That was then...



This is now...



HV MONITORING REVOLUTIONIZED

SPLITTER (MGMP SERIES)



FIELD INSTALLATION

The **SPLITTER** was developed in order to overcome hazardous and burdensome tasks associated with taking voltage measurements during commissioning of ESP equipment and periodic well testing (Fluid Shots).

The SPLITTER, available through Magney Grande, is the only known device of its nature to have passed rigorous UL Certifications (UL 347). The Splitter is a permanently installed device with internal components which divide/split/reduce high voltage to low voltage on a 1000:1 ratio. In addition to voltage, The Splitter can also measure current (1000:1), actual frequency and harmonics (using a PQ metering device). All three phases (Phase--to--Phase, Phase--to--Ground) can be measured without the need to change Test Leads, using a standard 0--5V handheld Fluke meter.

The SPLITTER is the answer to a long standing problem in the oil production industry. Production engineers can have access to the reservoir information they need without compromising personnel safety and without subjecting equipment to processes known to reduce runlife.



Ordering Information

MODEL MGMP: Voltage/Current Measuring

MODEL MGMP-F: Voltage/Current/Frequency/Harmonics
Measuring

Performance Specifications

GENERAL:

- Enclosure Dimensions
31cm (12") X 26cm (10") X 15.5cm (6")
- Weight: 11.4 kg (25 lbs.)
- Relative Humidity Range: 0 – 100% Non-Condensing
- Operating frequency: 50Hz, 60Hz (Model MGMP)
- Operating frequency: 0 – 400Hz (Model MGMP-F)
- Operating Temperature: -40°C (-40°F) to +85°C (+185°F)
- Suitable for 55°C (131°F) Ambient

VOLTAGE MEASURING:

- Voltage Input Range: 0 - 5000 Volts AC
- Input Impedance: > 14 Meg Ohm
- Input Load: < 0.4 mA @ Max Operating Volts
- Test Point/Input Ratio: 1000:1
- Accuracy @ 55° C: +/- 1%
- Maximum Transient Voltage Input: 40kV

CURRENT MEASURING:

- Test Point/Input Ratio: 1000:1
- Example: 200 Amps AC = 0.200 Volts AC
- Accuracy @ 55° C: +/- 1%
- Standard CT Inner Diameter = 1.050"

FREQUENCY/HARMONICS MEASURING (Optional):

- Measure fundamental frequency with standard multimeter
- Measure system harmonics with a hand held oscilloscope
- Consult factory for additional information
- Ordering information: Model MGMP-F

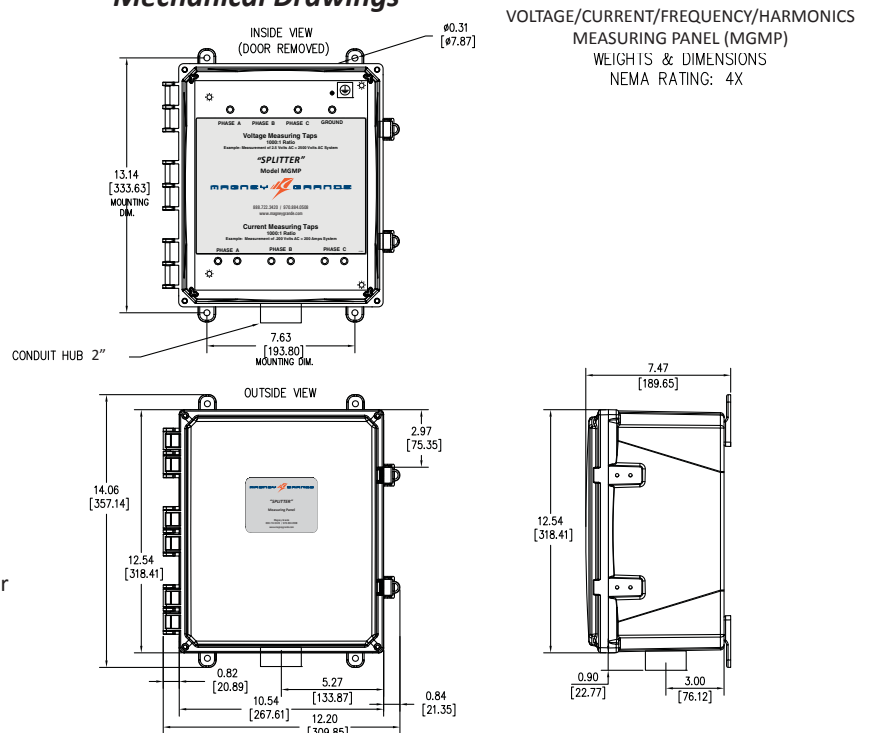
Design Features

- Provides a safe way for non-technical personnel to monitor system voltage, current, frequency and harmonics
- NEMA 4X Non-Metallic Enclosure
- Stainless Steel Lockable Latches
- 2" Threaded Female Hub included
- Pre-wired with 8ft of #14 AWG, 15kV wire for phase connections and #12 AWG for ground wire connection
- Pre-wired with 8ft of #14 AWG, 15kV wire for CT's
- Easy to access "Touch Safe" test points
- Suitable for 61010 CAT IV Instruments

Quality Standards & Validation

- ANSI / UL 347 Listed
- UL file: NJIJE351345 at www.UL.com via VCMP file
- CE
- RoHS Compliant
- 5 Year Warranty
- Calibrated to 1% Accuracy Prior to Shipment
- Quality Management System is ISO 9001:2008 Certified
- ISO 17025:2005 Laboratory Qualification
- Made in the USA

Mechanical Drawings





Medium Voltage Parallel Suppressor designed for Oil & Gas, Water, Chemical, Large Industrial & Heavy Duty Applications at Service Entrance, Distribution and Individual Equipment.

Performance Specifications

- Available Surge Current Ratings
 - 120kA per phase
- Proven 'large block' 40mm MOV Technology
- Protection Modes: All Modes L-L & L-G (Normal mode & Common mode)
- Directly connected MOV suppression elements
- NEMA 4 (IP66) Heavy Gauge Steel Enclosure
- Dimensions
 - 31cm (12") X 31cm (12") X 15.5cm (6")
- Weight:
 - Without monitoring: 29.5kg (65 Lbs)
 - With monitoring: 34.5kg (75 Lbs)
- Relative Humidity Range: 0 – 95% Non-Condensing
- Operating Frequency: 50Hz, 60Hz
- Operating Temperature: -40°C (-40°F) to +85°C (+185°F)

Quality

- Seven (7) Year Warranty on SPD
- One (1) Year Warranty on Diagnostic Instrumentation
- Every unit Burn-in Tested Prior to Shipment
- ANSI/IEEE C62.11
- UL Category Code VZQK Listed - *PENDING*

Design Features

- Low clamping voltage for maximum equipment protection
- Parallel design MOV suppression allows installation flexibility
- Bi-directional operation for positive & negative surges
- Solid state, fully automatic action & reset
- Intended for High Energy applications including all IEEE C62.41.2 Category A, B & C High Applications
- All Mode (6 Modes) dedicated (A-B, B-C, A-C, A-G, B-G, C-G)
- Pre-wired with 5 feet (1.3 Meters) #6 stranded leads
- Includes internally threaded conduit hub 1 1/4
- External Mounting Flanges
- Inorganic silica particle encapsulation
 - Noncombustible at extreme temperature
 - Superior gaseous expansion tolerance
- Double insulated against ground fault or arcing with separate polypropylene and polyethylene layers
- Elastomeric Ceramgard® potting protects against environmental contaminants
- Fusing - coordinate to electrical system
- High Voltage warning labels standard

Optional Monitoring Package (subject to change)

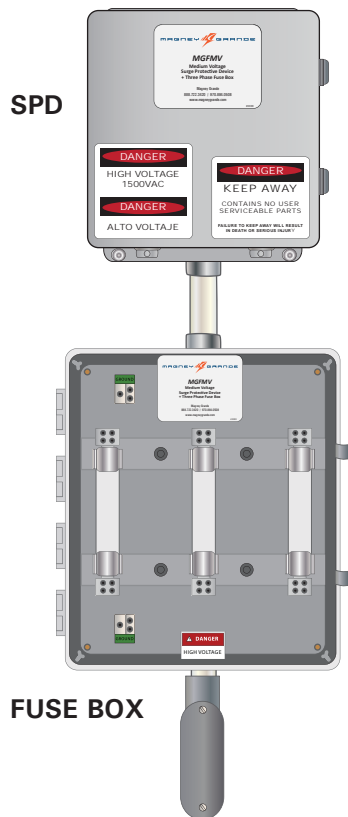
- Allows for on-site or remote monitoring of suppression circuits
 - Indicator lights for each phase
 - Dry Contacts for each phase

MODEL	SERVICE VOLTAGE	MCOV
MGMV-10SB	1000VAC	1320VAC
MGMV-15SB	1500VAC	2000VAC
MGMV-25SB	2500VAC	3300VAC
MGMV-30SB	3600VAC	4800VAC
MGMV-40SB	4160VAC	5500VAC

Example Part Number: MGMV-40SBD = 4160V, 120kA per phase, Monitoring Package Included.

SERIES DESIGNATION			M	G	M	V	-	4	0	D
MV	=	Non-Modular, Fixed Voltage, Medium Voltage								
VOLTAGE CODES										
10SB	=	1000V								
15SB	=	1500V								
25SB	=	2500V								
30SB	=	3600V								
40SB	=	4160V								
AVAILABLE OPTIONS										
D	=	Monitoring Package: Indicator lights per phase and dry contacts per phase (subject to change)								

MGFMV - Medium Voltage Surge Protective Device + Three Phase Fuse Box



Represents a typical installation of an MGFMV



The MGFMV consists of a medium voltage parallel SPD and stand-alone, three phase fuse box. The MGFMV is designed for Oil & Gas, Water/Wastewater, Chemical, Large Industrial & Heavy Duty Applications at Service Entrance, Distribution locations as well as Individual Equipment. The Three Phase Fuse Box component of the MGFMV is **REQUIRED** to be installed on the line side of, and in-line with, the medium voltage SPD component as dedicated overcurrent protection and to safely disconnect the SPD from the electrical system in the event of SPD failure.

MGFMV SPD Component Design Features

- Low clamping voltage for maximum equipment protection
- Parallel design MOV suppression allows installation flexibility
- Bi-directional operation for positive & negative surges
- Solid state, fully automatic action & reset
- Intended for High Energy applications including all IEEE C62.41.2 Category A, B & C High Applications
- All Mode (6 Modes) dedicated (A-B, B-C, A-C, A-G, B-G, C-G)
- Pre-wired with 2' (0.61 Meters) #6 stranded leads for connection to Fuse Box
- Includes internally threaded conduit hub 1 1/4"
- External Mounting Flanges
- Inorganic silica particle encapsulation
 - Noncombustible at extreme temperature
 - Superior gaseous expansion tolerance
- Double insulated against ground fault or arcing with separate polypropylene and polyethylene layers
- Elastomeric Ceramgard® potting protects against environmental contaminants
- High Voltage warning labels standard

MGFMV SPD Component Specifications

- Surge Current Rating: 120kA per phase
- Proven 'large block' 40mm MOV Technology
- Protection Modes: All Modes L-L & L-G (Normal mode & Common mode)
- Directly connected MOV suppression elements
- NEMA 4 (IP66) Heavy Gauge Steel Enclosure
- Dimensions: 31cm X 31cm X 15.5cm (12" x 12" x 6")
- Weight: 29.5kg (65 Lbs)
- Relative Humidity Range: 0 – 95% Non-Condensing
- Operating Frequency: 50Hz, 60Hz
- Operating Temperature: -40°C (-40°F) to +85°C (+185°F)

MGFMV SPD Quality

- Seven (7) Year Warranty on SPD
- Every unit Burn-in Tested Prior to Shipment
- ANSI/IEEE C62.11
- UL Category Code VZQK Listed - *PENDING*

MGFMV Series - Medium Voltage Surge Protective Device + Three Phase Fuse Box



Fuse Box Component Design Features

- Designed to be installed in front of and in-line with Magney Grande's MGMV Medium Voltage SPD as part of the MGFMV
- NEMA 4X Polycarbonate Enclosure with Stainless Steel Lockable Latches
- All Connecting Wires Included
 - 2.4m (8 ft) of #6 AWG, 25kV Wire each (3 Phase, 1 Ground)
 - Additional 6kV sleeving on each wire for added safety
- 2 – 1 1/4" threaded hubs included to enter and exit enclosure
- Includes 3 Bussman model 5.5CAVE (5.5kV, 15A)
- Includes 6" of conduit for SPD to Fuse Box connection

Fuse Box Component Specifications

- Enclosure Dimensions:
 - 457.2mm X 406.4mm X 254mm (18" x 16" x 10")
- Weight: 15.9 kg (35 lbs)
- Maximum Voltage: 5500VAC
- Maximum Current: 15 Amp
- Torque: 80 Inch-Lbs
- Relative Humidity Range: 0 – 95% Non-Condensing
- Operating Frequency: 50Hz, 60Hz
- Operating Temperature: -40°C (-40°F) to +85°C (+185°F)

COMPONENT DESIGNATION		
F	=	Three Phase Fuse Box

COMPONENT DESIGNATION		
MV	=	Non-Modular, Fixed Voltage, Medium Voltage

VOLTAGE CODES		
10SB	=	1000V
15SB	=	1500V
25SB	=	2500V
30SB	=	3600V
40SB	=	4160V

MG F MV - 40SB

MODEL	SERVICE VOLTAGE	MCOV
MGFMV-10SB	1000VAC	1320VAC
MGFMV-15SB	1500VAC	2000VAC
MGFMV-25SB	2500VAC	3300VAC
MGFMV-30SB	3600VAC	4800VAC
MGFMV-40SB	4160VAC	5500VAC

Example Part Number: MGFMV-40SB = 4160V, 120kA per phase, Three Phase Fuse Box



Features:

- UL 1449 Third Edition Listed (Sept 2009)
- 100kA, 150kA & 200kA per phase ratings
- Type 1 SPD:
 - All UL required OCP & Safety Coordination included inside
 - Can be installed line-side or load-side of main disconnect
- 200kA SCCRs
- Voltage Specific Design
- All MOV suppression elements monitored

Performance Specifications

- | Model | Surge Current Per Phase |
|---------|-------------------------|
| MGD 100 | 100kA |
| MGD 150 | 150kA |
| MGD 200 | 200kA |
- UL 1449 Third Edition Listed and cUL
- UL 1449-3 Type 1 SPD (cUL Type 2 optional suffix)
- UL 1449-3 tested Inominal (I_n): 20kA & 10kA
- UL 1449-3 tested SCCR: 200kA
- Less than 1 nanosecond response time
- Repetitive Impulse: 5,000 hits

Physical Specifications

- Relative Humidity Range: 0-95% non-condensing
- Operating Frequency: 47-63Hz
- Operating Temperature: -25°C (-15°F) to +60°C (140°F)
- Weight: 5 lbs (2.3 kg)
- NEMA 4X Polycarbonate enclosure – UL 746C (f1) & UL 94-5VA
- Dimensions: 6" x 6" x 4" (152mm x 152mm x 102mm) (excluding removable mounting feet)
- Lug size: #8 - #10 AWG
- Typical connection: 10 AWG (included)

Diagnostic Monitoring:

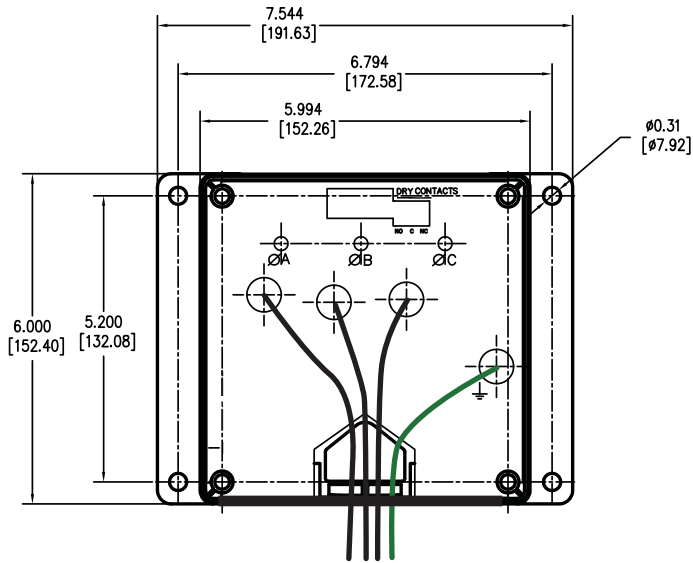
- 100% monitoring – Every MOV is monitored
- Green LED Status indicator per phase
- Phase Loss monitoring
- Electrically isolated circuitry ensures surges do not damage diagnostics

Design Features

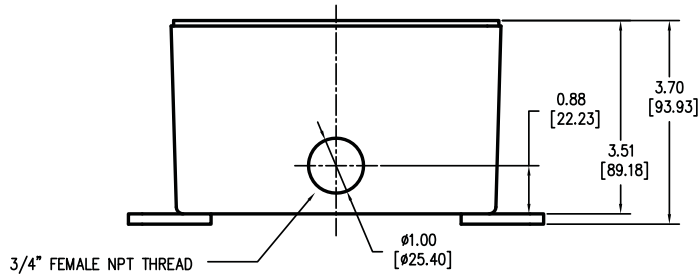
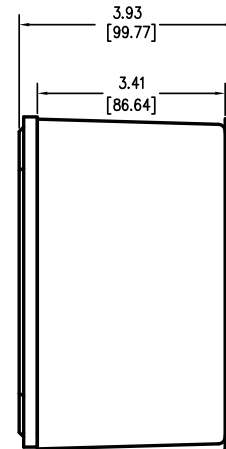
- Designed, Manufactured & Tested consistent with:
 - ANSI/IEEE C62.41.1-2002, C62.41.2-2002, and C62.45-2002
 - NEMA LS-1
 - NEC Article 285
 - IEC 61643, CE
- High Energy Parallel Design for Category C3 & C-High applications
- For External Mounting next to Switchgear, Motor Controls Centers, VFDs or Panelboards
- All Mode (6 Modes) dedicated (A-B, B-C, A-C, A-G, B-G, C-G)
- Individually Fused & Thermally Protected MOVs
- Large-Block, 34mm square, 50kA MOVs
- Solid State Bidirectional Operation

Quality, Standards & Validation:

- UL 1449 Third Edition (cUL Type 2 Optional)
- UL file: VZCA.E321351 at www.UL.com
- RoHS-compliant
- IEC 61643, CE
- 20 year warranty
- Burn-In tested Prior to Shipment
- ISO 9001:2008 Quality Management System
- ISO 17025:2005 Laboratory Qualification
- Made in USA



10 AWG leads included



ENCLOSURE SPECS:
DESC: NON-METALLIC ENCLOSURE
DIM: 6.00"H x 6.00"W x 3.93"D
MAT: POLYCARBONATE (5VA & F1)
FINISH: GRAY
NEMA RATING: 4X
DEVICE WEIGHT: 4.95LBS. (2.24KG.)

PERFORMANCE DATA					ANSI/IEEE C62.41.2-2002 Measured Limiting Voltages								UL VPR			
					Cat B/C-Low 6kV, 3kA 90° Phase Angle				C3/C-High 20kV, 10kA 90° Phase Angle				UL 1449-3rd Edition Voltage Protection Rating			
Model #	System Configuration	Nominal System Voltages	SCCR	MCOV	L-N	L-G	N-G	L-L	L-N	L-G	N-G	L-L	L-N	L-G	N-G	L-L
MGD-100SR	3 Phase, 3 Wire + Ground	525, 600	200kA	690V	-	2200V	-	2240V	-	2990V	-	2990V	-	2500V	-	2500V
MGD-150DP	3 Phase, 3 Wire + Ground	220, 230, 240	200kA	320V	-	968V	-	1060V	-	1190V	-	1380V	-	2000V*	-	1200V
MGD-150VD	3 Phase, 3 Wire + Ground	380, 400, 415, 440, 460, 480	200kA	552V	-	1680V	-	1920V	-	2080V	-	2390V	-	1800V	-	2000V
MGD-200VD	3 Phase, 3 Wire + Ground	380, 400, 415, 440, 460, 480	200kA	552V	-	1680V	-	1920V	-	2080V	-	2390V	-	1800V	-	2000V
MGD-200FO	3 Phase, 4 Wire + Ground	220, 277, 240	200kA	320V	992V	944V	960V	1680V	1120V	1040V	1159V	1920V	1200V	1200V	1200V	2000V
MGD-100LP	3 Phase, 4 Wire + Ground	120, 127	200kA	150V	528V	560V	576V	1040V	670V	689V	640V	1120V	700V	700V	600V	1000V
													* In Review			



Features:

- UL 1449 Third Edition Listed (Sept 2009)
- 100kA per phase rating
- Type 1 SPD:
 - All UL required OCP & Safety Coordination included inside
 - Can be installed line-side or load-side of main disconnect
- 200kA SCCRs
- Voltage Specific Design
- All MOV suppression elements monitored

Performance Specifications

- | Model | Surge Current Per Phase |
|---------|-------------------------|
| MGC 100 | 100kA |
- UL 1449 Third Edition Listed
- UL 1449-3 Type 1 SPD (cUL Type 2 optional suffix)
- UL 1449-3 tested Inominal (I_n): 20kA & 10kA
- UL 1449-3 tested SCCR: 200kA & 100kA
- Less than 1 nanosecond response time
- Repetitive Impulse: 5,000 hits

Physical Specifications

- Relative Humidity Range: 0-95% non-condensing
- Operating Frequency: 47-63Hz (also 400Hz on <480V)
- Operating Temperature: -25°C (-15°F) to +60°C (140°F)
- Weight: 3 lbs (1.4 kg)
- NEMA 4X Polycarbonate enclosure – UL 746C(f1) & UL 94-5VA
- Dimensions: 8" x 3" x 3" (203mm x 76mm x 76mm)
- 3/4" threaded hub - weather resistant 4X
- Pre-wired with 3' (1m) of #10 AWG conductor
- Typical connection: #10 AWG (included)

Diagnostic Monitoring

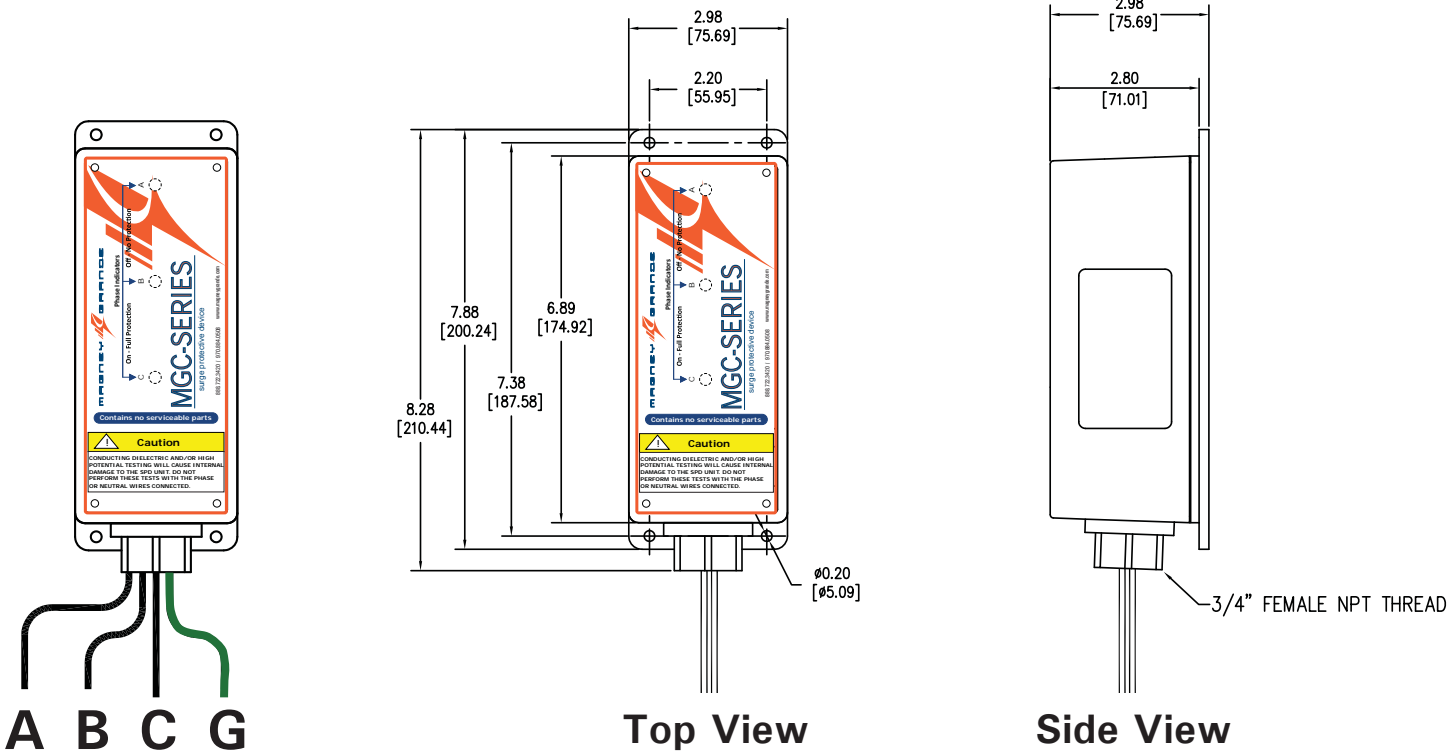
- 100% monitoring – Every MOV is monitored
- Green LED Status indicator per phase
- Phase Loss monitoring
- Electrically isolated circuitry ensures surges do not damage diagnostics

Design Features

- Designed, Manufactured & Tested consistent with:
 - ANSI/IEEE C62.41.1-2002, C62.41.2-2002, and C62.45-2002
 - NEMA LS-1
 - NEC Article 285
 - IEC 61643, CE
- High Energy Parallel Design for Category C3 & C-High applications
- For External Mounting next to Switchgear, Motor Controls Centers, VFDs or Panelboards
- All Mode (6 Modes) dedicated (A-B, B-C, A-C, A-G, B-G, C-G)
- Individually Fused & Thermally Protected MOVs
- Large-Block, 34mm square, 50kA MOVs
- Solid State Bidirectional Operation

Quality, Standards & Validation

- UL 1449 Third Edition, (cUL Type 2 optional)
- UL file: VZCA.E321351 at www.UL.com
- RoHS-compliant
- IEC 61643, CE
- 20 year warranty
- Burn-In tested Prior to Shipment
- ISO 9001:2008 Quality Management System
- ISO 17025:2005 Laboratory Qualification
- Made in USA



PERFORMANCE DATA					ANSI/IEEE C62.41.2-2002 Measured Limiting Voltages								UL VPR			
					Cat B/C-Low 6kV, 3kA 90° Phase Angle				C3/C-High 20kV, 10kA 90° Phase Angle				UL 1449-3rd Edition Voltage Protection Rating			
Model #	System Configuration	Nominal System Voltages	SCCR	MCOV	L-N	L-G	N-G	L-L	L-N	L-G	N-G	L-L	L-N	L-G	N-G	L-L
MGC-100DP	3 Phase, 3 Wire + Ground	220, 230, 240	200kA	320V	-	1020V	-	1020V	-	1160V	-	1220V	-	1200V	-	1200V
MGC-100RP	3 Phase, 3 Wire + Ground	380, 400, 415, 440, 460, 480	200kA	552V	-	1580V	-	1710V	-	2170V	-	2260V	-	1800V	-	1800V

THE ROD CHEMICAL GROUND SYSTEM

INSTALLATION OF THE ROD



A COMPLETE INSTALLATION



Applications

- Electric Submersible Pumps
- Tank Batteries
- Pumping Units with VSD and PLC controls
- Office Complexes
- Communications Centers
- RTU Buildings
- VSD Motor Controllers
- Computer Facilities
- Anywhere Reliable Grounding is Required

Manufactured by Custom Submersible & Electrical Service



Why Use THE ROD: THE ROD gives the best possible ground in extreme environments. When conventional grounding is not adequate or when your site requires a dependable ground during all seasons, THE ROD is the product you need. Keeping ground resistance readings low is imperative for lightning protection systems to work properly. THE ROD achieves these low levels and continues to maintain them as time progresses. Unlike other systems that tend to lose their effectiveness over time, THE ROD's efficiency actually increases.

How It Works: THE ROD is filled with a mixture of naturally occurring salts that has been designed to give the lowest resistance possible. This mixture permeates into the surrounding backfill material through holes in THE ROD. As time passes these roots get progressively longer, thus increasing the effectiveness of the ground system. The backfill material around THE ROD is a carbon based mixture that enhances the soil conductivity.

Where Reliability is Crucial: Lightning protection systems, TVSS, and lightning arrestors are only as good as the system ground they are connected to. THE ROD should be installed to prevent expensive equipment failure and costly downtime.



www.magneygrande.com

Magney Grande Distributing, inc.
P.O. Box 1010, Bayfield, CO 81122

Tel: 970.884.0508
Fax: 970.884.4155



European Authorized Representative
Obelis s.a.
Boulevard Général Wahis 53
1030 Brussels, BELGIUM
Tel: +(32) 2. 732.59.54
Fax: +(32) 2. 732.60.03
E-Mail: mail@obelis.net