PROTECOMPU

Quito, 07 de octubre del 2014

Señores
EMPRESA ELECTRICA PÚBLICA ESTRATÉGICA CORPORACION NACIONAL DE LECTRICIDAD EP-UNIDAD DE NEGOCIOS SUCUMBIOS
Presente.-

Referencia: Proceso de Licitación Pública Nacional **CÓDIGO DEL PROCESO: BID-RSND-CNELSUC-DI-OB-020**

OBJETO DE CONTRATACION:

"FORTALECIMIENTO DE LA INFRAESTRUCTURA DEL CENTRO DE DATOS PARA EL SOPORTE Y MONITOREO DEL SISTEMA ELÉCTRICO DE DISTRIBUCIÓN EN CNEL EP UN SUCUMBÍOS"

Reciba un cordial saludo, en respuesta a la convalidación de errores solicitada, envío adjunto:

1. Presentamos el Formulario 1 de la oferta, con el precio del contrato de $142.848,36 (Ciento cuarenta y dos mil ochocientos cuarenta y ocho con 36/100), igual que en la "*Carta de Aceptación*" y de la "*TABLA DE DESCRIPCIÓN DE RUBROS, UNIDADES Y CANTIDADES*" sin incluir IVA.
2. Aclaramos lo solicitado en el documento de "*ESPECIFICACIONES TÉCNICAS DE LA OFERTA*", numeral 1.1 correspondiente a "ADECUACIONES DEL CENTRO DE CÓMPUTO", constante en el folio 101.

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3. Aclaramos lo solicitado en el documento de "*ESPECIFICACIONES TÉCNICAS DE LA OFERTA*", numeral 11.4 correspondiente a "CAPACIDADES" del Supresor de Transitorios, constante en el folio 126.
4. Aclaramos lo solicitado en el documento de "*ESPECIFICACIONES TÉCNICAS DE LA OFERTA*", numeral 12.3 correspondiente a "MODELO" del Sistema de Climatización para Centro de Datos, constante en el folio 128.

Gracias por la atención a la presente.

Atentamente,

Ing. Fernando Rodríguez
Gerente General
PROTECOMPU C.A.

PROTECOMPU

Formulario 1.

Quito, 07 de octubre de 2014

BID-RSND-CNELSUC-DI-OB-020 FORTALECIMIENTO DE LA INFRAESTRUCTURA DEL CENTRO DE DATOS PARA EL SOPORTE Y MONITOREO DEL SISTEMA ELÉCTRICO DE DISTRIBUCIÓN EN CNEL EP UN SUCUMBÍOS.

A: CNEL EP - Unidad de Negocio Sucumbíos;

Dirección: Av. 20 de junio entre Eloy Alfaro y Venezuela

Después de haber examinado los Documentos de Licitación, incluyendo la(s) enmienda(s) [5.3, 5.5 5.6, 6.1, 7.1, 8.1, 9.1, 10.1, 11.1,11.2, 11.3, 12.1, 13.1, 14.1, 14.2, 14.3, 14.4, 15.1, 15.2, 15.3, 15.4, 16.1, 16.2, 16.3, 17.1, 17.2, 17.3, 17.4, 17.5, 17.6, 18.1, 18.2, 19.1, 19.2, 19.3, 19.4, 20.1, 20.2, 20.3, 20.4, 21.1, 21.2, 22.1, 23.1, 23.2, 23.3, 23.4, 23.5, 24.1, 24.2, 24.3, 23.5, 24.1,24.2, 24.3, 25.1, 26.1, 27.1, 27.2, 27.3, 28.1, 28.2, 29.1, 30.1, 30.2, 30.3, 30.4, 30.5, 31.1, 32.1, 33.1, 34.1, 34.2, 34.3, 34.4, 35.1,35.2, 35.3, 35.4, 36.1,37.1], ofrecemos ejecutar el contrato BID-RSND-CNELSUC-DI-OB-020 FORTALECIMIENTO DE LA INFRAESTRUCTURA DEL CENTRO DE DATOS PARA EL SOPORTE Y MONITOREO DEL SISTEMA ELÉCTRICO DE DISTRIBUCIÓN EN CNEL EP UN SUCUMBÍOS de conformidad con las CGC que acompañan a esta Oferta por el Precio del Contrato de USD 142.848,36, CIENTO CUARENTA Y DOS MIL OCHOCIENTOS CUARENTA Y OCHO CON 36/100 DÓLARES AMERICANOS MÁS IVA.

El Contrato deberá ser pagado en las siguientes monedas:

Moneda	Porcentaje pagadero en la moneda	Tasa de cambio:	Insumos para los que se requieren monedas extranjeras
DOLARES AMERCIANOS	NO APLICA	NO APLICA	NO APLICA

PROTECOMPU

El pago de anticipo solicitado es:

Monto	Moneda
a) $71.424,18	DOLARES AMERICANOS

Aceptamos la designación del designado por el Centro de Mediación de la Procuraduría General del Estado como Conciliador.

Esta Oferta y su aceptación por escrito constituirán un Contrato de obligatorio cumplimiento entre ambas partes. Entendemos que ustedes no están obligados a aceptar la Oferta más baja ni ninguna otra Oferta que pudieran recibir.

Confirmamos por la presente que esta Oferta cumple con el período de validez de la Oferta y, de haber sido solicitado, con el suministro de Garantía de Mantenimiento de la Oferta o Declaración de Mantenimiento de la Oferta exigidos en los documentos de licitación y especificados en los DDL.

Los suscritos, incluyendo todos los subcontratistas requeridos para ejecutar cualquier parte del contrato, tenemos nacionalidad de países miembros del Banco de conformidad con la Subcláusula 4.1 de las IAO. En caso que el contrato de obras incluya el suministro de bienes y servicios conexos, nos comprometemos a que estos bienes y servicios conexos sean originarios de países miembros del Banco.

No presentamos ningún conflicto de interés de conformidad con la Subcláusula 4.2 de las IAO.

Nuestra empresa, su matriz, sus afiliados o subsidiarias, incluyendo todos los subcontratistas o proveedores para cualquier parte del contrato, no hemos sido declarados inelegibles por el Banco, bajo las leyes o normativas oficiales del País del Contratante, de conformidad con la Subcláusula 4.3 de las IAO.

No tenemos ninguna sanción del Banco o de alguna otra Institución Financiera Internacional (IFI).

Usaremos nuestros mejores esfuerzos para asistir al Banco en investigaciones.

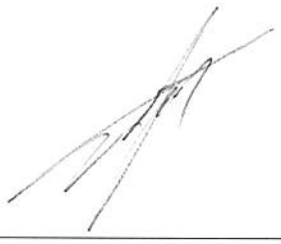
Autorizamos al ente convocante a solicitar referencias bancarias o comerciales.

Nos comprometemos que dentro del proceso de selección (y en caso de resultar adjudicatarios, en la ejecución) del contrato, a observar las leyes sobre fraude y corrupción, incluyendo soborno, aplicables en el país del cliente.

NO APLICA De haber comisiones o gratificaciones, pagadas o a ser pagadas por nosotros a agentes en relación con esta Oferta y la ejecución del Contrato si nos es adjudicado, las mismas están indicadas a continuación: **NO APLICA**

Nombre y dirección del Agente	Monto y Moneda	Propósito de la Comisión o Gratificación

Firma Autorizada:



Nombre y Cargo del Firmante: ING. FERNANDO RODRIGUEZ

Nombre del Oferente: PROTECOMPU C.A.

Dirección: Av. Eloy Alfaro N72-294 y Calle #40 Sector "La Cristianía"

CONVALIDACIÓN DE ERRORES

CODIGO DEL PROCESO:BID-RSND-CNELSUC-DI-OB-020

OBJETO:"FORTALECIMIENTO DE LA INFRAESTRUCTURA DEL CENTRO DE DATOS PARA EL SOPORTE Y MONITOREO DEL SISTEMA ELÉCTRICO DE DISTRIBUCIÓN EN CNEL EP UN SUCUMBÍOS"

FECHA: Martes 07 de octubre de 2014

PROVEEDOR: PROTECOMPU C.A

ACLARACIONES

En el documento de "*ESPECIFICACIONES TÉCNICAS DE LA OFERTA*", numeral 1.1 correspondiente a "ADECUACIONES DEL CENTRO DE CÓMPUTO", constante en el folio 101.

PROTECOMPU realizara lo solicitado que es:

"Desmontaje de 2 puertas de madera, 1 ventana de aluminio dentro del actual CPD, 1 ventana de aluminio en el espacio que será recorrida la pared, 3 puntos de iluminación, de 1 punto de fuerza de pared a derrocar, 1 punto de red. 1,50 mt. de ventana de aluminio."

Protecompu aclara el cumplimiento completo de lo solicitado.

- En el documento de "*ESPECIFICACIONES TÉCNICAS DE LA OFERTA*", numeral 11.4 correspondiente a "CAPACIDADES" del Supresor de Transitorios, constante en el folio 126, PROTECOMPU oferta:

  "Las capacidades de protección serán las siguientes:
  140 KA de protección por fase en la zona de tableros generales.
  60 KA de protección por fase en zona de Tableros de Distribución y PDU's."

  Sin embargo, al revisar los catálogos provistos, específicamente el documento "BROCHURE SPD.pdf" consta con las siguientes capacidades emitidas por el fabricante:

  "Surge Current Rating: ACV 65 KA/Mode, 130 KA/Phase
  All 80 KA/Mode, 160 KA/Phase"

  Protecompu, aclara que los SPD y capacidad que estamos ofertando en cumplimiento de lo solicitado, esto es:

  "Las capacidades de protección serán mejores a las solicitadas es decir serán las siguientes:
  160 KA de protección por fase en la zona de tableros generales.
  160 KA de protección por fase en zona de Tableros de Distribución y PDU's"
  Adjuntamos catalogo del SPD ofertado.

- En el documento de "*ESPECIFICACIONES TÉCNICAS DE LA OFERTA*", numeral 12.3 correspondiente a "MODELO" del Sistema de Climatización para Centro de Datos, constante en el folio 128, PROTECOMPU oferta:

  "*MODELO::Data Mata DM-037E*"

  Sin embargo, al revisar los catálogos provistos, específicamente el documento "Catalogo AA Centro de Datos.pdf" consta el Modelo DME037E emitido por el fabricante.

Protecompu aclara que se trata del mismo modelo según el Catálogo del Fabricante es decir DME037E.

La información solicitada debe será enviada a los correos electrónicos procesos.bid.cnel@eeq.com.ec; frmena@eeq.com.ec; cyacche@eeq.com.ec, el documento físico debe ser entregado en la secretaria de gerencia general a la dirección Av. 20 de Junio y Venezuela en el edificio CNEL SUCUMBIOS tercer Piso dentro de la fecha prevista en el calendario del proceso.

Atentamente,

Ing. Fernando Rodríguez

Gerente General

PROTECOMPU C.A.

LIEBERT ACCUVAR SERIES
TRANSIENT VOLTAGE SURGE SUPPRESSOR
WITH OPTIONAL NOISE FILTERING

GUIDE SPECIFICATIONS

160 KA

FOR A PARALLEL SURGE SUPPRESSION SYSTEM

1.0 GENERAL

1.1 Summary

These specifications describe the electrical and mechanical requirements for a high-energy transient voltage surge suppressor (TVSS). The specified system will provide effective high-energy surge current diversion, sine wave tracking for electrical line noise filtering and be suitable for application in ANSI/IEEE C62.41 Category A, B, and C environments, as tested by ANSI/IEEE C62.11, C62.45 and MIL-STD-220A. The system will be connected in parallel with the protected system; no series connected elements will be used which limit load current or kVA capability.

1.2 Standards

The specified system will be designed, manufactured, tested and installed in compliance with the following codes and standards:

- Canadian Standards Association (CSA)
- American National Standards Institute and Institute of Electrical and Electronic Engineers (ANSI/IEEE C62.11, C62.41, and C62.45)
- National Electrical Manufacturer Association (NEMA LS-1 1992)
- National Fire Protection Association (NFPA 20, 70, 75 and 780)
- Underwriters Laboratories (UL 1449, UL 1283) (Second Edition)
- MIL-STD-220A
- International Standards Organization (ISO) Company certified ISO 9001 for manufacturing, design and service
- EMC Directive 89/336/EEC - CE Compliant

The individual TVSS units will be UL listed under UL 1449 (Rev 7/2/87) Standard for Transient Voltage Surge Suppressions and the surge ratings will be permanently affixed to the TVSS. The unit will also be complementary listed to UL 1283 Standard for EMI/RFI Facility Filters.

1.3 System Description

The TVSS/Filter will be constructed using multiple surge current diversion arrays of metal oxide varistors (MOV), matched to a variance of ±1 volt. The array will consist of multiple gapless metal oxide varistors, with each MOV individually fused. The arrays will be designed and constructed in a manner that ensures MOV surge current sharing. No gas tubes, silicon avalanche diodes or selenium plates/rectifiers will be used. The status of each array will be continuously monitored and a green LED will be illuminated if the array is in full working order. All protection modes, including N-G, will be monitored and internally fused for compliance with NEC article 110.9,110.10 and 280.22.

1.4 Electrical Requirements

Maximum Continuous Operating Voltage (MCOV)

The TVSS and all components in the suppression path (including all current diversion components) maximum continuous operating voltage (MCOV) will be greater than 115% of the nominal system operating voltage to ensure the ability of the system to withstand temporary RMS over-voltage (swell conditions).

Operating Frequency

The operating frequency range of the system will be at least 47 - 63 Hz.

1.5 Life Cycle Testing

Life Expectancy Testing

The unit will be capable of protecting against and surviving at least 6000 10 kA surges per ANSI/IEEE C62.41-1991 Category C without failing or degrading the UL 1449 surge suppression ratings by more then 5%.

Maximum Continuous Operating Voltage (MCOV) Testing

The unit will be factory-tested to ensure proper MCOV of the unit.

1.6 Overcurrent Protection

Fusing

All protection modes (including neutral to ground) of the TVSS will be internally fused at the component level with the fuses I^2T capability to allow the suppressor's maximum rated transient current to pass through the suppressor without fuse operation. If the rated I^2T characteristic of the fusing is exceeded, the fusing will be capable of opening in less than one millisecond and clear both high and low-impedance fault conditions. The fusing will be capable of interrupting up to 200 kA symmetrical fault current with 600 VAC applied. This overcurrent protection circuit will be monitored and provide indication of suppression failure/operability. Conductor level fuses or circuit breakers internal or external to the TVSS will not be acceptable.

1.7 Design Requirements

Protection Modes:

(Selection Required - Line to Line or Delta systems)

_____Surge Modes Required (Line to Line) (Line to Line and Line to Ground)

(Selection Required - Line to Neutral, Single Phase Split, Delta Hi-leg or Wye systems)

_____Surge Modes Required (Line to Neutral and Neutral to Ground), (Line to Line, Line to Neutral and Neutral to Ground), (Line to Neutral, Line to Ground and Neutral to Ground), (Line to Line, Line to Neutral, Line to Ground and Neutral to Ground)

1.8 Performance Ratings

Surge Current Capacity: (selection required)

The TVSS surge current capacity, based on an 8 x 20 microsecond waveform, will be:

160 kA Surge Rating per Phase

UL 1449 Ratings

The system performance ratings will be based on the UL 1449 listing ratings for IEEE C62.41 Category B3 impulse waveforms of 6 kV 1.2 x 50 microseconds, 3 kA 8 x 20 microsecond waveshapes. The maximum UL 1449 listed surge rating for each and/or all of the specified protection modes will not exceed:

- 120/208 volt systems

Noise Attenuation Option

Typical noise attenuation will be a minimum of 50dB for 50 ohm measurement method, 10kHz to 500MHz. The unit will be complementary listed to UL 1283. Only UL 1283

complementary listed products will be acceptable for this requirement; all others will be rejected.

Response Time

The typical response time of all suppression components will be .5 nanoseconds.

1.9 Submittals

Documentation

These specifications are based on the Liebert TVSS product. All other manufacturers will submit for 10 day pre-approval, a completed TVSS manufacturer's evaluation questionnaire (available from the engineer) and provide detailed compliance or exception statements to all provisions of this specification to allow consideration. Additionally, manufacturers will submit complete LS-1 report complete with independent test data from a nationally recognized testing laboratory verifying the following: life cycle testing, overcurrent protection, UL 1449, noise attenuation and surge current capacity. Failure to do so will result in product disapproval. Any deviation from the published specification will result in an applicable deduct applied.

Equipment Manual

The manufacturer will furnish an installation manual with installation, startup, troubleshooting guide and operating instructions for the specified system.

Drawings

Electrical and mechanical drawings will be provided by the manufacturer that show unit dimensions, weights, component and connection locations, mounting provisions, connection details and wiring diagram.

UL 1449 Ratings

Documentation of specified system's UL 1449 listing and clamping voltage ratings of all protection modes will be included as required product data submittal information.

UL 1283 Complementary Listing

Documentation of the specified system's UL 1283 Complementary listing will be included as required product data submittal information.

1.10 Quality Assurance

The manufacturer will be ISO 9001 certified. The specified interconnect assembly will be designed and manufactured in the USA by a qualified manufacturer of TVSS products and line conditioning equipment. The manufacturer will have been engaged in the design and manufacturer of such products for a minimum of 10 years.

Environmental Requirements

Storage Temperature:	-55 to +85°C (-67 to +185°F)
Operating Temperature:	-40 to +60°C (-40 to 140°F)
Relative Humidity:	0% to 95%
Audible Noise:	less than 45 dBa at 5 feet (1.5 m)
Operating Altitude:	0 to 18,000 feet above sea level

The unit will not generate any appreciable magnetic fields and will be suitable for use directly inside computer rooms.

1.11 Warranty

The manufacturer will provide a 10-year parts limited warranty from date of shipment against failure when installed in compliance with manufacturer's written instructions, UL listing requirements, and any applicable national or local electrical codes. Manufacturer will make available for consultation, (local, national) engineering service support.

2.0 PRODUCTS

2.1 Enclosure

The unit case will be an enclosure rated UL94-5V, the best rating for resistance to flammability available. Further, the enclosure will be designed and tested to NEMA 12, 4 and 4X standards. The enclosure dimensions will be 177.8 mm long x 108 mm wide x 101.6 mm deep (7 in. x 4.25 in. x 4 in.). The unit will weigh a maximum of 3.2 kg. (7 lbs.).

2.2 Connections

The unit will be designed to be installed using the flexible conduit provided by the TVSS manufacturer. All parallel connections to the TVSS will be kept as short as possible. The connection to the TVSS will be made using #10 AWG maximum (ring terminal will be provided).

2.3 Standard Features

Unit Status Indicators—The unit will have an integral status circuit that monitors the operational status of all modes of protection, including Line to Neutral, Line to Ground and Neutral to Ground. No manual testing is required to confirm the integrity of the suppression and filter systems. If the unit does fail, the green LED will go out and the red LED will be lit.

Undervoltage Detection—Unit will be equipped with 70% undervoltage detection capability.

Phase Loss Monitoring—Unit will be equipped with phase loss monitoring.

Power Loss Monitoring—Unit will be equipped with power loss monitoring.

2.4 Optional Features

Summary Alarm Relay Contacts—In addition to the LED indicators, the unit will be equipped with a summary alarm relay with one set of Normally Open and Normally Closed (Form C) dry contacts rated for 125 VAC, 1 amp (minimum). The contacts will change state and indicate a failure of the unit, a phase loss condition or a full power loss condition.

2.5 Testing

In compliance with NEMA LS-1 1992 paragraphs 2.2.9 and 3.9, the proposed product will be single pulsed surge current tested in all modes at the rated surge currents by an industry recognized independent test laboratory. The test will include a UL1449 surge impulse (6kV [1.2x50µs], 500 amp [8x20 µs] waveform) to benchmark the unit's suppression voltage. The

applied impulse is followed by a single pulse surge of the maximum rated surge current magnitude, followed by a second UL 1449 impulse as a means of measuring clamping deviation (component degradation). Compliance is achieved if the two measured suppression voltage do not vary by more than 5%.

3.0 EXECUTION

3.1 Installation

The installing contractor will connect the TVSS in parallel to the power source, keeping conductors as short and straight as practically possible. The contractor will twist the TVSS input conductors together to reduce input conductor impedance. When installed, the unit will be supplied by a 30 amp circuit breaker. The contractor will follow the TVSS manufacturer's recommended installation practices and comply with all applicable codes.

NOTE

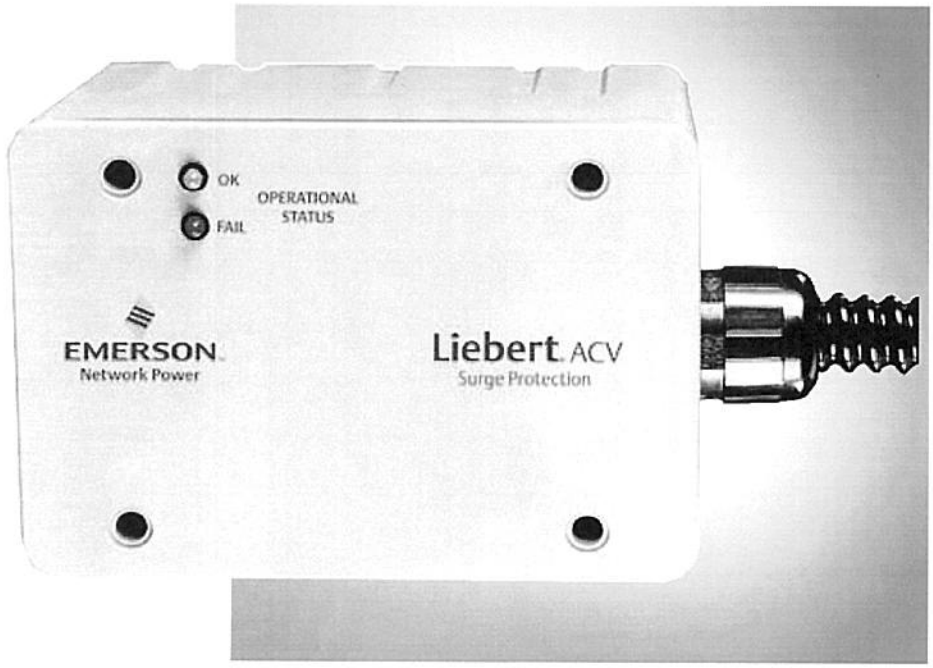
This Guide Specification complies with the outlines of the Construction Specifications Institute per CSI MP-2-2-85 and MP-2-1-88.

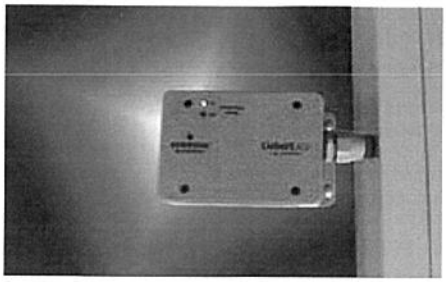
Surge Protection
For *Business-Critical Continuity™*

Liebert® ACV Series

The Industry Standard For Surge Protection

The Liebert ACV Series, (AccuVar) is a multi-phase, multi-mode distribution panel mounted surge protective device that offers continuous protection from damaging transients and electrical line noise.





Features & Benefits

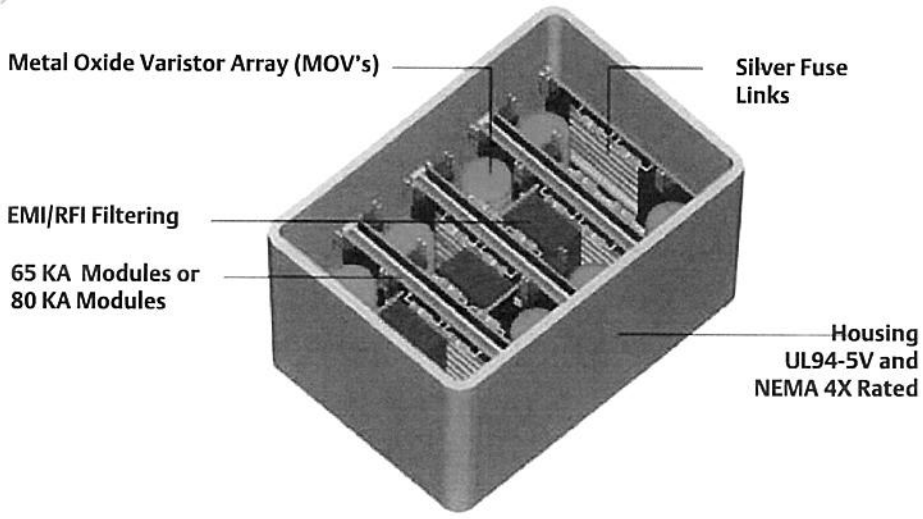
- **Easy, safe,** and maintenance-free operation.
- **Repeatable surge current** capability for long life.
- **Easily retrofits** on existing panelboards.
- **Compact Module** attaches directly to breaker panel.
  Dimensions:
  7"L x 4.25"W x 4"D
  Weight: 6 lb. 6 oz.
- **Patented** Liebert AccuVar Detection Circuitry monitors all modes of failure, including neutral to ground.
- **Standard Audible Alarm** to indicate reduced protection.
- **ANSI/IEEE C62.41 Category A, B, & C3** Compatible ANSI/IEEE C62.11, C62.45 Tested.
- **UL Tested** for outdoor use suitability.
- **High-isolation dry contacts** for remote system integrity monitoring.
- **ANSI/UL 1449 Third Edition Listed.**
- **10-Year Warranty.**

EMERSON
Network Power

General Specifications

Connection Means:	Parallel connected
Certifications:	ANSI/UL 1449 Third Edition, UL 1283 (Type 2 locations), CSA and CE listed
Protection Modes:	All modes standard (L-N, L-G, N-G, L-L) optional—any combination
Surge Current Rating:	ACV 65 KA/Mode, 130 KA/Phase All 80 KA/Mode, 160 KA/Phase
50 ohm EMI/RFI Attenuation:	63 dB max from 10kHz to 100MHz
Response Time:	< 0.5 nanoseconds
Operating Frequency:	47/63 Hz
Enclosure:	Grey Noryl HS-1000, Rated 94-5V, NEMA, 12, 4, 4X
Fault Current Rating:	200,000 AIC
Location Type:	Type 1
Nominal Discharge Current (In):	20kA
Line Frequency:	47-63 Hz
Line Voltage:	+/-15% nominal
Temperature:	-40 to +60 degrees C
Relative Humidity:	0 to 95% noncondensing
Altitude:	0 to 18,000 feet
Audible Noise:	Less than 45 dBa
Standard Monitoring:	LEDs and Audible Alarm

Maximum Safety:
The modules used in the Liebert AccuVar System are UL tested at 600 VAC and 200,000 AIC. Each MOV inside the module is individually fused and matched to within 1 Volt to ensure maximum sharing and full surge current handling capability. These 99.9% pure silver links are ultrafast clearing providing minimal follow current in the event failure occurs.



Emerson Network Power
Liebert Corporation
World Headquarters
1050 Dearborn Drive
P.O. Box 29186
Columbus, Ohio 43229
United States Of America
800 877 9222 Phone (U.S. & Canada Only)
614 888 0246 Phone (Outside U.S.)
614 841 6022 FAX

Emerson Network Power
European Headquarters
Via Leonardo Da Vinci 8
Zona Industriale Tognana
35028 Piove Di Sacco (PD)
Italy
39 049 9719 111 Phone
39 049 5841 257 FAX
Emerson Network Power Asia Pacific
29/F, The Orient Square Building
F. Ortigas Jr. Road, Ortigas Center
Pasig City 1605
Philippines
+63 2 687 6615
+63 2 730 9572 FAX

liebert.com

Technical Support
800 288 6169 Toll-Free
607 721 8840 Phone
607 722 8713 Fax

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- **Surge Protection**

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