

TECHNICAL EVALUATION REPORT(PART 1- GENERAL CONDITIONS)
AUGMENTATION OF SURGE PROTECTION SYSTEM FOR CNS INSTALLATIONS
AT MANGALURU INTERNATIONAL AIRPORT
TENDER NO.: AAI/ANS/CNS/VOML/2020/SURGE PROTECT/T-01

SL NO	Item & Required Specifications	<u>UNEX POWER</u> <u>POINT PVT LTD,</u> <u>NEW DELHI</u>	<u>SECOM SERVICES</u> <u>INDIA PVT LTD,NEW</u> <u>DELHI</u>
1	. Annexure-III.b: Duly filled and signed PQ Bid Checklist as per Annexure-III.b	COMPLIED	COMPLIED
2	Copies of relevant purchase orders duly signed by authorized signatory as a proof of experience of works claimed by the bidder. Refer clause 11.10.2 for guidance.	COMPLIED	COMPLIED
3	Performance/Experience certificates duly signed by authorized signatory and issued by the end user. Refer clause 11.10.3 for guidance	COMPLIED	COMPLIED
4	Certified copy issued from Chartered Accountant for certifying financial turnover for the last THREE YEARS and Abridged Balance Sheets along with Profit & Loss Account. Refer clause 11.10.1 for guidance	COMPLIED	COMPLIED
5	Certified Copy of PAN,	COMPLIED	COMPLIED
6	Certified Copy of GST Registration certificate.	COMPLIED	COMPLIED
7	Section A – General Conditions of Contract	COMPLIED	COMPLIED
	Bidder is required to upload duly signed, stamped and digitally signed all documents of the Section- A by the firm's authorized signatory as a proof of accepting all conditions of contract.		
8	Section B – Special Conditions of Contract	COMPLIED	COMPLIED
9	Bidder is required to upload duly signed, stamped and digitally signed all documents of the Section- B by the firm's authorized signatory as a proof of accepting all conditions of contract.		
10	Section C – Technical & Qualitative Requirement	COMPLIED	COMPLIED
	Bidder is required to upload duly filled, signed, stamped and digitally signed all documents of the Section- C by the firm's authorized signatory as per guidance given in succeeding para.		

Page 1 of 10

[Signature]
13/10/2020
(Impdru.MP)

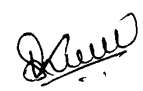
[Signature]
13/10/2020
Priscilla D

[Signature]
13/10/2020
MADHU.T.A

11	"Complied", "Not complied" & "Partially Complied" shall be mentioned against each statement/ specification of Section-C along with supported appropriate documentation of the product/item. Further bidder is required to mention corresponding Page and Para number of the OEM Documentation/Test Reports enclosed with the tender Section-C: Part-B, in support of the compliance for each Para, for verification. Tender shall not be considered for evaluation and is liable to be rejected if bidder is failed to comply the same.	COMPLIED	COMPLIED
12	Section D: Notice Inviting Tender (NIT)		
	Bidder is required to upload duly signed, stamped and digitally signed all documents of the Section-D by the firm's authorized signatory as a proof of accepts	COMPLIED	COMPLIED
13	ANNEXURE-VI (Unpriced Bill of Quantity)		
	Bidder is required to upload in Technical bid duly filled, signed and stamped or digitally signed all documents of Annexure- VI by the firm's authorized signatory as per guidance given in succeeding para.	COMPLIED	COMPLIED
14	A complete list of deliverables with Make and Model Number of offered equipment(s) and accessories, as per items mentioned in schedule WITHOUT INDICATING THE PRICE.	COMPLIED	COMPLIED
15	ISO certificate(s), in respect of the OEM(s) of the offered product(s).	AUTHORISED REPRESENTATIVE	AUTHORISED REPRESENTATIVE
16	Certificates in proof of. SECTION- C PART B: SYSTEM DESIGN AND TECHNICAL REQUIREMENTS para 03.01.m The product offered must be tested and certified as per IEC61643 and ANSI/IEEE C62.41 cat A,B,C standards.	COMPLIED	COMPLIED
	QUALIFIED OR NOT	QUALIFIED	QUALIFIED

Total no of technical bidS received: **Two**Technically qualified bids: **Two**


HYDRU M P, DGM (CNS)


PIUSA M D, AGM (CNS)


MADHU T A, SM (CNS)

**TECHNICAL EVALUATION REPORT (PART 2- TECHNICAL SPECIFICATION COMPLIANCE)
AUGMENTATION OF SURGE PROTECTION SYSTEM FOR CNS INSTALLATIONS
AT MANGALURU INTERNATIONAL AIRPORT
TENDER NO.: AAI/ANS/CNS/VOML/2020/SURGE PROTECT/T-01**

SL NO	Item & Required Specifications	UNEX POWER POINT PVT LTD, NEW DELHI	SECOM SERVICES INDIA PVT LTD, NEW DELHI
1	Primary Protection Type B+C		
a	A Comprehensive surge protection system comprising of INTEGRATED CLASS B+ CLASS C TYPE SURGE PROTECTION SYSTEM to be installed at the mains input Panel of the Equipment Shelter.	COMPLIED	COMPLIED
b	It shall comply with the performance requirement of IEC 61643or equivalent.	COMPLIED	COMPLIED
c	The system shall offer Comprehensive protection against all types of transient over voltages and shall employ high capacity MOV only. It shall be capable of handling lightning as well as switching surges.	COMPLIED	COMPLIED
d	Class B surge protection N-G may consist of encapsulated air gap devise (GDT) and may be used as galvanic separation between N_PE conductors with the following characteristics. Protection Mode: N-PE. Single pole single protection device. Protection Mode: N-PE Single pole single protection device. Impulse current Capacity: 100KA Max current 160KA Status indicator Available.	COMPLIED	COMPLIED
e	The surge protection system shall offer all mode protection ie. each phase to Neutral, each phase to earth and neutral to earth.	COMPLIED	COMPLIED
f	The surge arrester shall comprise of multiple MOV based surge arrestors housed in an IP65 enclosure.	COMPLIED	COMPLIED
g	The surge protection system design shall be Modular in nature and individual surge arrester can be replaced after its elements reach the end of their life.	COMPLIED	COMPLIED
h	Each element of the surge arrester shall be rated as below. Maximum continuous Voltage : 440V Min. Lightning Impulse Current :15KA (10/350µs) per Phase. Nominal Discharge Current : 80KA(8/20µs) Maximum Discharge Current : 150 KA(8/20µs) Peak Value current : 40KA(10/350µs)	COMPLIED	COMPLIED

[Signature]
13/10
(Manager MD)

Page 3 of 10
[Signature]
13/10/2020
Piusa M.D.

[Signature]
13/10/2020
MADHU.T.A

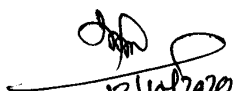
	Specific Energy : 400 KJ/Ω Charge : 20As Protection Level : 1.9KV(8/20μs) ; 1.7KV (10/350μs) Response Time : <25ns Residual Current : <2.5ma Follow current : 0 Thermo Coupler : Present Fuse : Present Short Circuit Withstand : 25KA for 50Hz Supply Switching Surge Current(I Max) : 100KA(8/20μs) Switching Surge Current(Inom) : 30KA(8/20μs) Clamping Voltage : 1800V Between L-E,L-N,N-E Minimum Inom Exposure : 20 Before fusing	COMPLIED	COMPLIED
i	The surge protection system shall be connected in parallel with the circuit and shall not draw the line current.	COMPLIED	COMPLIED
j	The system shall be connected to the circuit with 16Sqmm single core PVC insulated copper cable.	COMPLIED	COMPLIED
k	Terminal connectors of the system shall be designed to avoid loose connections.	COMPLIED	COMPLIED
l	Fault indication at each individual SPD and a combined indication at enclosure front.	COMPLIED	COMPLIED
m	The product offered must be tested and certified as per IEC61643 and ANSI/IEEE C62.41 cat A,B,C standards.	COMPLIED	COMPLIED
2	Series Surge Filter It shall be installed in series and as close to the input of the UPS as possible and have the following features.		
a	It shall offer all mode protection.	COMPLIED	COMPLIED
b	It shall have 3 stage protection. i. The first stage should consist of metal oxide visitors are connected between each phase and neutral to absorb transverse mode surges generated by load switching and other power system disturbances. These MOV's in conjunction with the MOV between neutral and ground should absorb common mode surges caused by lightning induced disturbances or power system earth faults. ii. The second stage of the filter should consist of inductor (L) wounded in cylindrical ferrite core and capacitors (C). The LC section low pass filter components should further attenuate surge voltages already clamped by the first stage MOV's. In addition to this the filter should attenuate noise and power system harmonics and should be designed to attenuate both transverse and common mode noise.	COMPLIED	COMPLIED


 13/10/2020
 (ampone)





	iii. The third stage of protection should consist of MOV's connected across the load side of the filter in a similar configuration as stage 1. These MOV's should provide further stage of protection and safeguard the filter's integrity and in addition to this, this stage should provide suppression of any surges generated by load side connected equipment. iv. Each visitor (MOV) should be protected with a thermal fuse, In case of an overload the fuse should blow. And the capacitor in the filter also should be protected with a series fuse, so that the filter failure should not interrupt the main supply. In addition to each MOV status indicator a common indication for the availability of the filter is to be provided on the front panel of the filter. v. An on/off/Bypass switch of Appropriate capacity should be provided with each filter. vi. The product offered must be tested and certified as per IEC61643 and ANSI/IEEE C62.41 cat A,B,C standards.	COMPLIED	COMPLIED
2A	Technical Specification for 125 Amps 3 Phase Three Stage Series Power Filter. i. No of Phases : 3 ii. Current Rating : 125Amps Continuous iii. Operating Voltage : 240V AC iv. Rated VA : 90 KVA v. Voltage Drop : <3V at Full load vi. Efficiency : 99% vii. Protection Mode : Transverse and Common Mode viii. Protection Stages : MOV/LPF/MOV ix. Filter Configuration : LC Transverse and Common x. Inductor (L) : Wounded in cylindrical ferrite Core. xi. Capacitor Type(C) : Self-healing polypropylene. xii. Standards Compliance : ANSI C62.41 CAT ABC AS 1768 1991 cat ABC IEC 61643. xiii. Surge Rating : 8/20 μs Pulse Response 1 Pulse 70KA 5 Pulse 40KA 10 Pulse 25KA xiv. Internal Protection : MOV Thermal fuse protection Capacitor Series fuse xv. Alarms : Individual Components LED Common Front panel Indicator External Alarm through voltage free C/O contact. xvi. Response Time : < 5ns	COMPLIED	COMPLIED

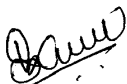

13/10/2020
Campore


Page 5 of 10



2B	Technical Specification for 32 Amps single phase series surge filter i. No of Phases : 1 ii. Current Rating : 32 Amps Continuous iii. Operating Voltage : 240V AC iv. Rated VA : 7.68KVA v. Voltage Drop : <3V at Full load vi. Efficiency : 99% vii. Protection Mode : Transverse and Common Mode viii. Protection Stages : MOV/LPF/MOV ix. Filter Configuration : LC Transverse and Common Mode. x. Inductor (L) : Wounded in cylindrical ferrite Core xi. Capacitor Type(C) : Self-healing polypropylene xii. Standards Compliance : ANSI C62.41 CAT ABC AS 1768 1991 cat ABC IEC 61643. xiii. Surge Rating : 8/20 μs Pulse Response 1 Pulse 40KA 5 Pulse 25KA 10 Pulse 15KA xiv. Response time : < 5ns. xv. Internal Protection : MOV Thermal fuse protection Capacitor Series fuse xvi. Alarms : Individual Components LED Common Front panel Indicator External Alarm through voltage free C/O contact	COMPLIED	COMPLIED
3	Equipment Level protection and Equipotential Bonding Device Airport is located in heavy lightning prone area. Protection of the Navigational equipment during adverse weather is essential for safe and uninterrupted air navigation system at the Airport. Therefore, an efficient lightning and surge protection System is to be provided to ensure protection against surges and transient over voltages through direct and indirect lightning strikes to be provided with near to zero potential between Earth and Neutral (Nominal 0.2V Max 0.5V) Irrespective of earth pit resistance at the location.	COMPLIED	COMPLIED

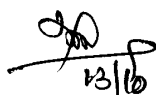
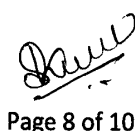

13/10/2020
(Haridasan MB)





a	The protection device should be able to eliminate abnormal Voltage and induced current from lightning and other abnormal electrical disturbances and protect the connected equipment from all kind of surges, transient over voltages, Electrical noise Harmonic disturbance etc.	COMPLIED	COMPLIED
b	The protection device should be able to give complete lightning protection and form optimistic grounding system (Common Grounding, equipotential) while eliminating lightning Surge Current.	COMPLIED	COMPLIED
c	The protection device should be able to provide protection against lightning damages by neutralizing the electrical characteristics of the lightning surges and other abnormal Electrical disturbances of the power supply by eliminating the surges and transient over voltages.	COMPLIED	COMPLIED
d	After installing the system the earth neutral voltage must be less than 1.0V irrespective of earth resistance value at the site and must be maintained in all weather conditions.	COMPLIED	COMPLIED
e	The protection system must be modular in construction and easy to carryout repair, in case of failure.	COMPLIED	COMPLIED
f	The protection system must have an inbuilt digital surge counter fitted as a standard facility.	COMPLIED	COMPLIED
g	It must have equipped with an earth termination plate for connecting various grounds to enable equipotential bonding.	COMPLIED	COMPLIED
h	The device must be able to protect the connected equipment from all kinds of electrical disturbances such as surge, transient etc. The device should be able to eliminate abnormal, induced voltages, voltage spikes and impulses. It should also protect the system from secondary surge developed due lightning.	COMPLIED	COMPLIED
i	The product offered must be tested and certified as per IEC61643, IEC 61000-4-5, IEC 61000-6-3 and MIL-STD-810-G standards.	COMPLIED	COMPLIED
j	The product offered must be complying with EMC Directive 89/336 amended by 92/31/EEC	COMPLIED	COMPLIED
k	The product offered must be ecofriendly and should not make any kind of environmental pollution and manufacturer must be certified as per ISO14001:2004 Environmental Management System	COMPLIED	COMPLIED
l	System must be enclosed in a pre-wired enclosure.	COMPLIED	COMPLIED
3A	Technical Specifications for 240KA 3ϕ 4 wire Equipment level protection and Equipotential bonding device - Rated Voltage : 380-415 Volts 3 phase 4 wires 50-60Hz - Surge handling capacity : 240 kA Max - Max continues operating voltage (Uc) : 275 Volts (L1-N, L2-N & L3- N), 255 Volts (N-G) - Mode of protection: 3 phase 4 wires: 7 modes (L1-N, L2-N, L3-N L1- G, L2-G, L3-G, N-G), - Maximum Discharge Current (Imax): 40 kA (each Mode) - Nominal Discharge Current (In): 10 kA (each Mode)	COMPLIED	COMPLIED

	VII. Short circuit withstand : 10 kA VIII. Standby power consumption : 1.32 VA max IX. Residual current : 0.001A X. Residual voltage with 8/20μs : 1.59 kV (L-N), 1.06 kV (N-G) XI. Spark over voltage: 1.15 kV XII. Bonding potential: Nominal < 0.2 Volts, max 0.5 volt (Between earth & Neutral) irrespective of earth pit resistance at the location. XIII. Standards & Testing: IEC- 61643-1-2006, IEC6100-4-5(2005.11), IEC61000-6-1, IEC61000-6-3 XIV. EMC Compliance: As per directive 89/336/EEC amended by 92/31/EEC XV. Environmental protection : as per ISO14001:2004 XVI. Testing and Approvals: CE, KERI, SIRIM as per IEC XVII. Indications: LED XVIII. Surge counter: In-built LCD counter XIX. Diagnostic : Through inbuilt RJ45 jack XX. Operating temperature : -40°C - +80°C XXI. Enclosure: Pre-wired metal enclosure with pulverulent body painting	COMPLIED	COMPLIED
3B	Technical Specifications for 120KA 1ϕ for 3 wire Equipment level protection and Equipotential bonding device Rated voltage : 220-240 Volts Single phase 2 wires 50-60Hz Surge handling capacity: 120 kA Max Max continues operating voltage(Uc): 275 Volts (L1-N), 255 Volts (N-G) Mode of protection: Single phase 2 wire: 3 mode (L-N, L-G, N-G) Maximum Discharge Current (Imax): 40 kA (each Mode) Nominal Discharge Current (In):10 kA (each Mode) Short circuit withstand :10 kA Standby power consumption : 1.32 VA max Residual current : 0.001A Residual voltage with 8/20 s :1.59 kV (L-N)1.06 kV (N-G) Sparkover voltage:1.15 kV Assured bonding potential: < /=1.0 Volts (Between earth Neutral) Standards & Testing: IEC-61643-1-2006,IEC6100-4-5(2005.11), IEC61000-6-1,IEC61000-6-3 MIL-STD-810-G EMC Compliance: As per directive 89/336/EEC amended by 92/31/EEC Environmental protection: as per ISO14001:2004 Testing and Approvals : CE, KERI, SIRIM as per IEC Indications : LED Surge counter : In-built LCD counter Diagnostic : through inbuilt RJ45 jack Operating temperature : -40°C - +80°C Enclosure : Pre-wired metal enclosure With pulverulent body	COMPLIED	COMPLIED

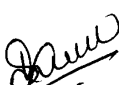



Page 8 of 10



4 RF Protection for Communication Equipment.		
Technical Specifications for RF Protection" Surge & transients over voltage induced through RF Coaxial cable with N type M/F connector. I. RF Surge Protection using coaxial surge protection devices. Protection to the equipment against electrical disturbances entering through RF coaxial cables must be provided II. The device must protect the connected equipment such as receivers, analyzers etc from induced transients due to lightning strikes causing direct induction or potential differences caused due to EPR (earth potential rise) during lightning strike. III. The device must be a fast response one with low let-through voltage for fast rise time transients and must ensure operation at high frequencies with low insertion loss IV. The connectivity of the coaxial surge protection modules must be either N type (M/F) or BNC (M/F). V. The coaxial surge protectors should be installed in the RF feeder termination close to the equipment. VI. The device must have a M5 earth stud to ensure a substantial connection to earth either by a cable or direct mounting to ensure proper grounding. The offered protection device must have the following specifications:- Frequency range : 0-20GHz VSWR: < 1.1:1 Return loss : > 26dB Insertion loss : < 0.2dB Impedance : 50 Ω for all models Response time : <5ns Peak surge rating: 20 kA (8/20μs) DC spark over voltage: 90V+/- 20% (230,350,600,1000V) Max. power : 0 – 2000 W Standards compliance: ITU (CCITT)1x K17, BS6651-1999 Cat. A.B.C , AS1768-2003 Cat A.B.C CP33-1996 Cat A.B.C , IEC61643-21/UL497B Body material: Brass(Nickel plated) Contact pin: Brass(silver/gold plated) Contact socket : Beryllium or tin brass(silver/gold Elastic contact : Beryllium or tin brass(silver/gold plated) Insulator PTFE	COMPLIED	COMPLIED


13/10

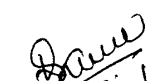

Page 9 of 10



5	Transient Earth Bonding Unit.		
	Transient bonding unit for various earth points connected to achieve equipotential during heavy surge intrusion and to avoid circulation current among various services. Operating voltage : up to 230V DC Firing voltage : 230V DC Impulse firing voltage : <600V at 1 Kv / us Surge rating : 20KA 8/20us or better Enclosure Rating : IP68 explosion proof enclosure with proper entry glands. Bonding work to be done : All the equipment, structures and Earth pit should be bonded together to form on complete system to ensure that there is complete continuity in the lighting protection system and thus eliminating the possibility of any flashover.	COMPLIED	COMPLIED
6	Technical Specifications for Cable.		
	Type : Bonding cable shall be used multi strand pure electrolytic Copper cable with PVC Insulation as per IS/IEC/ASNZ standards. Certification : ISI certified Size : 35/16/10 Sq.mm Insulation : PVC Insulation Conductor Material : Pure Electrolytic Copper	COMPLIED	COMPLIED
	QUALIFIED OR NOT	QUALIFIED	QUALIFIED

Total no of technical bid received: **Two**Technically qualified bids: **Two**


12/10/2020
HYDRU M P, DGM (CNS)


13/10/2020
PIUSA M D, AGM (CNS)


13/10/2020
MADHU T A, SM (CNS)

Signature Not Verified

Digitally signed by HARIDASAN EMBRAN
T N
Date: 2020.10.19 13:51:57 IST
Location: eProcurement System for
Central PSUs