

ANNEXURE-1

**Supply, Erection, Testing and Commissioning of Flameproof Digital Indicator panels
for Load Cell Based Overload Sensing Systems in SDSC, SHAR**



1.0 Title of the contract :

Supply, Erection, Testing and Commissioning of Flameproof Digital Indicator Panels for Load Cell Based Overload Sensing Systems in SDSC, SHAR

2.0 Details of site

Location of Plant : Sriharikota, AP

Elevation: 4.2 m

Access to Site: Road- From North of Chennai is approx. 100 km.
From East of Sullurpeta in Nellore dist is approx 28km.
Rail- Chennai –Vijayawada rail track line

Climatic Conditions

a) Temperature

Mean of daily max	:	42.2 °C
Mean of daily min.	:	11.8 °C
Maximum Temperature	:	44.6 °C
For electrical system design	:	50.0 °C to be considered

3.0 Scope of work

1. Disconnection and removal of existing Flameproof Digital Indicator Panels mounted on a metal framework and shifting of the panels to outside the premises.
2. Supply of Flameproof Digital Indicator panel complying with detailed specifications furnished in table-1.
Note: Each Flameproof Digital Indicator panel shall consist of 2 nos of Digital Indicators and associated circuits suitable for interfacing to 2 nos of load cells
3. Erection of Flameproof Digital Indicator Panel on metal frame work at site. The erection work includes cutting, welding and grinding works which form scope of the bidder.
Note: The required MS angles and MS channels will be supplied by SDSC at free of cost and hence, these are not in the scope of the bidder.
4. End termination of power, signal and control cables in the flameproof digital indicator as per the application requirement at site.
5. Parameterization of digital indicators as per the application requirement at site.
6. Functional testing and commissioning of flameproof digital indicators

Table 1 Technical Specifications of flameproof Digital indicator Panel and associated circuits

S.no	Parameter	Specification
Digital Indicator		
1.	Type	Digital Indicator suitable for interfacing with balanced bridge -strain gauge type load cell
2.	Power Supply voltage & Frequency	230/110Vac \pm 10 % , 50Hz \pm 5 % Configurable at site.
3.	Relay outputs	2 nos; Rating: AC14/15:3A at 230V ac
4.	Input signal range	As per standard
5.	Max Excitation voltage to load cells	5V
6.	Programming device	suitable keypad or similar device
7.	Features	Password protection, tare and System calibration through input programmable device, system reset
8.	Display	Value in tonnes 5 digit LED display Display resolution: 1/50000, Programmable Programmable decimal points & Overload indication
9.	Inbuilt Analog To Digital Converter	24 bit high precision high speed ADC to yield 1/50000 resolution Higher specifications are also acceptable
10.	Remote communication interface	RS 485/PROFINET for Communicable to remote SCADA computer through daisy chain architecture
11.	Site environment	Sea shore, Saline , high humidity
12.	Max operating temperature	50°C or higher
13.	Max Relative humidity	85% or higher
14.	Other specification	<ol style="list-style-type: none"> 1) Item shall be suitable for load cell specified below 2) Item shall include Zener barriers to make load cell unit suitable for installation in hazardous area zone-1, gas group IIB as per IS 2148:2004/ IEC 60079-(2001) or amendments thereof. 3) Digital indicator shall be suitable for installation in a flameproof enclosure suitable for usage in hazardous area zone-1, Gas group IIC, ex-d, T6 as per IS 2148:2004/ IEC 60079-(2001). 4) Upon overload, the actuated internal relay shall remain latched till overload condition exists. Following relay actuation, an auxiliary contactor shall get actuated and hold on till RESET bush button on the enclosure front is actuated. Auxiliary contactor rating: 2NO+2NC, coil voltage & frequency: 110V ac, 50Hz, AC14/15:6A at 110Vac 5) The enclosure front should not have any provisions other than incoming power supply switch disconnecter and RESET bush button. The switch disconnecter shall be rugged in construction and of rating 10A at 110Vac. 6) Flameproof Digital Indicator shall not have any provision for changing any parameter of the digital indicator from outside the enclosure. 7) The complete circuit shall be wired up to the terminal block and made ready for input & output terminations. 8) All power and control circuits shall have protections as per standards. 9) It shall be the responsibility of the manufacturer to ensure adequacy of the design, good workmanship and adopt good engineering practice in the manufacture of the offered items. 10) All items shall be designed for satisfactory operation considering supply voltage and frequency variations. 11) In the present set up, the supply voltage is 110V ac which will be changed to 230Vac in the future. Hence, digital indicators and all

		circuit elements except the auxiliary contactor coil shall be suitable for operation on 230Vac and 110Vac. Necessary provisions shall be considered in the design. 12) The installation, testing and commissioning for this item, against this tender, will be done at site with 110Vac only.
Flameproof Enclosure		
1.	Power Supply	Single Phase,3 wire, 230 Vac \pm 10 %, 50Hz \pm 5%
2.	Hazardous Area classification	Zone-1 as per IS 2148:2004/ IEC 60079-(2001)
3.	Enclosure Type	Gas group IIC, ex-d, T6 as per IS 2148:2004/ IEC 60079-(2001)
4.	Mounting Type	Wall mounting/ Mounting on to metal framework using suitable fasteners
5.	Enclosure Material	Copper free Die Cast Aluminum Alloy complying relevant standards
6.	Degree of protection	IP-65 or better as specified in IS-13947
7.	Finish	Smoke grey shade as per IS:5 or as approved
8.	Internal wiring	Power: Minimum 2.5 Sq.mm multi strand copper conductor PVC insulated FRLS wires. Control/signal: Minimum 1.5 Sq.mm multi strand copper conductor PVC insulated FRLS wires.
9.	Earthing	1 internal and 2 external earthing.
10.	Cable entry	6 cable entries from bottom of 3/4" MT
11.	Cable glands	Flameproof SS double compression type
12.	Gaskets	All gaskets shall be of made of silicone
13.	Site environment	sea shore, Saline , high humidity
14.	Other specifications	a) Each flameproof enclosure shall have 2 nos of Digital Indicators and associated circuits suitable for interfacing to 2 nos of load cells b) Each flameproof enclosure shall be suitable for encompassing 2 nos of Digital Indicators and associated circuits. Certification in this regard shall be submitted along with the technical bid. c) Design should have ease of handling and replacing spare parts in site.
15.	Accessories as part of the item	3/4" MT stainless steel double compression gland –6 nos 3/4" MT SS dummy plug -2nos Mounting frame – 1 set
16.	Standards applicable	Item shall be comply with relevant BIS/IEC/ATEX/IECEx standards
Technical Specifications of load cells for which digital indicators are required Note: Load cells are not in the scope of the bidder		
1.	Type	Button type compression load cell
2.	Capacity	10t /20t
3.	Output Bridge resistance	8 to 350 Ω
4.	sensitivity	2 mV/V
5.	Accuracy	0.5% of full scale
6.	Max Excitation voltage	10V
7.	safe overload capacity	150%
8.	Cable	4C shielded cable

6.0 BID EVALUATION

- a) **As all the tendered items are inter-related, the cost comparison will be done on the total cost of all items put together including 1 year warranty and overall technically qualified L1 will be considered.**
- b) During evaluation, Department may request Bidder for any clarification on the bid / additional documents / information required. Bidder shall submit all clarifications / additional documents / information requested in original. If not submitted within the stipulated time department has right to reject such bids.
- c) Techno-commercial discussion shall be arranged with Bidder, if needed. Bidder shall depute his authorised representatives for attending discussions. The representatives attending the discussions shall produce authorisation from his organisation to attend the discussion and sign minutes of meeting on behalf of his organisation if required. The authorised representative must be competent and empowered to settle/decide on all technical and commercial issues.
- d) The complete scope of work is defined in the Tender document. Only those Bidders who undertake total responsibility for the complete scope of work as defined in the Tender document only will be considered.
- e) Bidder must provide the point by point compliance to the technical specifications along with deviations if any. The tender will be rejected, if the deviations are not acceptable to the Department.
- f) The time schedule for completion is given in the Proposal document. Bidder is required to confirm the completion period unconditionally.
- g) If necessary, to arrive at evaluated prices, wherever applicable, loading on total quoted prices shall be done.
- h) **Abnormally low price bid due to error in the cost computation or loading of quoted prices by the bidder will be summarily rejected.**

7.0 "MAKE IN INDIA" Clause:

General Terms & conditions for Bidders: For this procurement, bid from Class-I & class-II Local Suppliers are admissible. hence provisions contained in Public Procurement (Preference to Make in India), Order 2017 issued by Department for Promotion of Industry and Internal Trade (DIPP), Ministry of Commerce & Industries vide letter No. P-45021/2/2017-PP(BE-II) dated 04.06.2020 and subsequent amendment & directives shall be followed. Accordingly, offer will be evaluated & processed in conformation with above referred GOI order (Specially mentioned below). The bidder shall provide compliance and undertaking as per order and hereafter amendments:

a) Order no: F.No.6/18/2019 PPD dated 23.07.2020 of Department of Expenditure), Ministry of Finance Under Public procurement division for the General Financial rule (GFRs).

(b) Class-I local supplier means a supplier or service provider, whose goods, service or works offered for procurement, has local content equal to or more than 50%, as defined under order.

I Class-II local supplier means a supplier or service provider, whose goods, services or works offered for procurement, has local content more than 20% but less than 50%, as defined under this Order

(d) Verification of local content:

(i) The Class I local supplier/ Class- II local supplier at the time to tender, bidding or solicitation shall be required to indicate percentage of local content and provide self-certification that the item offered meets the local content requirement for Class-I local supplier / Class II local supplier as the case may be. They shall also give details of the location(s) at which the local value addition is made.

(ii) In case bid value is in excess of Rs. 10 Cr., Class-I local supplier / Class-II local supplier shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.

(iii) False declarations will be in breach of the code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules (GFR) for which a bidder or its successors can be debarred for up to two years as per Rule 151(iii) of the general Financial Rules along with such other actions as may be permissible under Law.

(iv) A supplier who has been debarred by any procuring entity for violation of this order shall not be eligible for preference under this order for procurement by any other procuring entity for the duration of the debarment.

I The percentage of local content should be specifically mentioned in the offer, without which it will be summarily rejected.

(f) Preference will be given to Class-I Local supplier and in their absence, Class-II Local supplier will be considered.

8.0 Bidder qualification criteria

1. Bidder shall be an OEM of offered digital indicators.
2. Bidder shall have 10 years or more experience in manufacturing Flameproof digital indicators for weighing/overload sensing systems.
3. Bidder shall have executed a single order worth Rs 15 lakhs or more, for supply, Installation, testing and commissioning of Flameproof digital indicators based weighing/overload sensing systems.
4. The company shall have ISO 9001 certification for manufacturing and supply of load cell based weighing/ overload sensing systems
5. The offered models of flameproof digital indicators should be in the market for period of 5 years or more by date 15-05-2024.
6. Bidder should have his own in-house laboratory for verifying functionality of offered Flameproof digital indicators. The lab shall be accredited by NABL, India/National or international accreditation agency.

If flameproof enclosure is a bought out item then,

7. OEM of flameproof enclosure should also have 10 years or more experience in manufacturing flameproof enclosures.
8. The OEM of flameproof enclosure shall have valid BIS certification/approvals for manufacturing of explosion proof electrical equipment. The company shall have ISO 9001 certification for manufacturing and supply of explosion proof electrical equipment

9.0 PACKING AND FORWARDING

- a) All packing and transport charges, transit handling costs, transit risk coverage and transport fees of agents employed at the place of delivery or elsewhere, shall be deemed included in the price to be paid to the Supplier.
- b) The tenderer will be held responsible for the stores being sufficiently and properly packed for transport by rail, road, sea or air, to withstand transit hazards and ensure safe arrival at the destination.
- c) The packing and Marking of packages shall be done by and at the expenses of the Contractor.

10.0 WARRANTY terms

All items shall be guaranteed for a period of minimum 12 months from the date of complete system commissioning and acceptance at our site against all manufacturing defects and free replacements of failed components/fittings shall also be included in the offer for warranty period.

11.0 DELIVERY SCHEDULE

The systems shall be delivered and commissioned within committed period from the date of receipt of the P.O.

Milestone events	Within the period
Date of receipt of PO by supplier	T0
Submission of BOM, GA drawings, technical datasheets & type test certificates of all supply items as per PO	T1=T0+ 2 weeks
Manufacturing Clearance by SDSC	T2=T1+2 weeks
QAP submission to SDSC	T3=T2+1 week
QAP clearance by SDSC	T4=T3+1 week
Delivery of all supply items as per PO	T5=T4+16 weeks
CLIP verification and Delivery acceptance by SDSC	T6=T5+1 week
Intimation of site clearance availability by SDSC to supplier for commencement of erection & Installation works	T7= T6+6 weeks
Erection works	T8=T7+4 weeks
Testing, Commissioning& documentation	T9=T8+2 weeks
CLIP verification and clearance	T10=T9+1 week

12.0 DELIVERY AND STORAGE

- a) Dispatch Instructions given in the Contract shall be strictly followed. Failure to comply with the instructions may result in delay in payment apart from imposing any other charges as may be deemed to fit.
- b) The Supplier shall be responsible for transporting all the equipment to site and unloading at site store. Manpower, material handling equipment etc required for unloading at site forms scope of the supplier. However, if material handling equipment of SDSC is not pre-occupied, services will be offered upon request from supplier on changeable basis as per SDSC norms.
- c) No items shall be delivered without obtaining dispatch clearance from SDSC SHAR.
- d) All the items shall be properly packed to avoid any damage during transportation / handling / storage.
- e) All items received at site shall be unloaded at a place assigned for this purpose.
- f) **Staggered supply is not acceptable.**

13. QUALITY ASSURANCE PLAN (QAP)

After approval of GA drawings and BOM by SDSC, the supplier shall submit (Quality Assurance Plan) QAP for supply items for verification and clearance by SDSC.

QAP shall include ,

Inspection/Testing at Factory	
Verifications for confirming compliance with approved GA drawings &BOM	SDSC witness.
Functional Testing of flameproof digital indicators. Lot size shall be as per BIS	SDSC witness.
Routine tests	
Physical inspection report for 100% of PO items	SDSC Review
Type tests	
Type tests reports for compliance of specifications as per relevant standards.	SDSC Review
Certification by CIMFR &PESO that permits usage of flameproof items in the defined hazardous area.	SDSC Review
Site tests	
Verification of BOM	
Verifications for confirming compliance with approved GA drawings &BOM	
All other site acceptance tests and commissioning tests	To be included in QAP

All factory test certificates shall be submitted to SDSC for verification and issue of dispatch clearance for supply items.

In case of exigency, SDSC will witness the tests in online mode.

14. Pre-delivery inspection:

- a) A team of Engineers from SDSC will witness the factory testing of completely manufactured items in all aspects.
- b) Call letter shall be sent to SDSC for pre-delivery inspection after completion of manufacturing of items in all aspects. SDSC will complete the Pre-delivery inspection within 2 weeks from the date of receipt of call letter. In case of any exigency, the SDSC participation will be in online mode.
- c) All factory tests for the items shall be conducted as per QAP and the test certificates shall be submitted for issue of dispatch clearance.

15. TESTING AND COMMISSIONING AT DEPT. SITE

Testing and commissioning of all flameproof digital indicators after erection includes

- a) Functional & Load test after interfacing with load cell at site
- b) Verification of tripping on overload condition

16) DOCUMENTS TO BE SUBMITTED AFTER COMMISSIONING

Submission of project completion report which includes,

- a) As built drawings
- b) O&M documents
- c) Technical datasheets of Digital Indicators
- d) Model and part no of components of the system that can be supplied as spares.
- e) Factory acceptance Test (FAT)reports
- f) Site acceptance Test (SAT) reports
- g) Certification by CIMFR &PESO for flameproof enclosure that permits usage of flameproof items in the defined hazardous area.

17. SUMMARY OF RESPONSIBILITIES

Activity	Responsibility of
QAP &BOM submission	Supplier
QAP &BOM verification and clearance	SDSC+ CLIP
Factory testing of items	Supplier
Witnessing factory tests & acceptance	SDSC+ CLIP
Dispatch clearance	SDSC
Delivery of all supply items	Supplier
Intimation of site clearance for erection & Installation works	SDSC
Erection& Installation of all items at site as per PO	Supplier
Material handling support for Internal movement of supply items from site stores to erection site + temporary power supply for erection , installation, testing and commissioning.	SDSC
Man power for Internal movement of supply items from site stores to erection site	Supplier
Tools, testing equipment, instruments, accessories like ladders, manpower assistance etc. required for erection, installation, testing& commissioning	Supplier
Testing and commissioning of complete system at site	SDSC + CLIP + Supplier
Documentation	Supplier
Acceptance of realized system	SDSC + CLIP

18.0 Addition instructions to the bidder

- a) All the items to be supplied under this contract shall be new.
- b) The supplier shall indicate any assumption made in respect of specification, data of any other details that have not been mentioned in this order but considered necessary for system design to meet the specified application requirements. All such assumptions will not be binding on ISRO unless expressly agreed upon. The supplier, under these conditions, shall supply items based on the data accepted to ISRO without any commercial implication.
- c) **As all the tendered items are inter-related, the cost comparison will be done on the total cost of all items put together and overall L1 meeting all tender specifications will be considered.**
- d) All necessary facilities including tools, testing equipment, instruments, accessories, manpower assistance etc. required for erection and installation works shall be provided by the supplier.
- e) **Filled in bidder compliance statement with all certificates/reports/proofs as asked shall be submitted along with technical bid. All points shall be specifically complied by the bidder. A declaration in any other form will be considered as incomplete offer and rejected.**
- f) Safety of workmen engaged by the supplier is whole & sole responsibility of the supplier.
- g) The supplier shall ensure suitable insurance coverage for his men & materials
- h) The supplier shall ensure that all the personnel engaged by them are adequately experienced in the type of work.
- i) The supplier shall take adequate care while working at site to avoid damages to the departmental properties and if any, the supplier shall repair/ make good to original condition with in 3 days as instructed by the Departmental in charge.
- j) The area/campus where the works proposed comes under high security coverage. Hence supplier has to ensure that every procedure is strictly adhered by them in the campus. Following are the gist of general guide lines and all rules and regulations by security agencies and SDSC shall have to be strictly followed.

- k) The supplier should ensure that all personnel engaged by them are adequately briefed about the security procedures in the campus. All personnel engaged for this work shall have clear credentials and proof as asked by the Dept shall be produced on demand.
- l) The supplier shall ensure that all personnel engaged by them are wearing ID pass issued by Dept as well as supplier throughout the working time. Their movement within the campus shall be restricted to the work site and related offices and within the time permitted only.
- m) All materials/tools brought by the supplier shall be declared at security supplier and one copy of the DC shall be kept at site throughout the contract period.
- n) The supplier shall make own arrangements of the safety of materials / tools brought by them. The supplier shall also ensure that he or his personnel are not bringing inside any material which is not required for the contract works.
- o) Temporary electrical power supply, material handling support for internal movements of materials required for erection, installation, testing and commissioning at site will be offered by SDSC at free of cost.**

19. Bidder Compliance statement

“Submit along with Technical bid”

Supply, Erection, Testing and Commissioning of Flameproof Digital Indicators for Load Cell Based Overload Sensing Systems in SDSC, SHAR

- 1) Bidder should confirm all the specifications, terms and conditions and requirements as mentioned above and as applicable. **Any deviation shall be clearly brought out separately.**
- 2) Any unfurnished data or details or documents considered as non-compliance and the offer will be rejected as incomplete bid.

Table 3.

S.NO	Particulars	Requirement	Quoted by the Bidder	Confirm if conforming to Tender specs
1.	Scope of the contract put to tender and all terms and conditions in the Tender	In section 3.0, the scope of work is defined. Bidder may please confirm if Scope of the contract put to tender is fully understood		
2.	Manufacturing of all supply items shall be taken up only after approval of drawings, technical datasheets & BOM by SDSC-SHAR.	Please note and confirm		
3.	Each Flameproof Digital Indicator panel shall consist of 2 nos of Digital Indicators and associated circuits suitable for interfacing to 2 nos of load cells	Please note and confirm		
4.	Bidder shall not quote any product/item which has become obsolete or which would become obsolete within next 10 years from the date of receipt of PO.	Endorsement from OEM shall be submitted along with the technical bid.		
5.	OEM shall guarantee the availability of spares for a period of 10 years from the date of acceptance.	Endorsement from OEM shall be submitted along with the technical bid.		
6.	The offered model shall be listed in the product catalogue of OEM and shall be manufactured in the manufacturing plant declared in the catalogue /website of OEM.	Please note and confirm		
7.	Technical datasheets of offered digital indicator shall be submitted along with	Please submit		

	technical bid			
8.	Type test reports of offered digital indicator shall be submitted along with technical bid	Please submit		
9.	Make , model no &GA drawings of offered flameproof enclosure shall be Furnished/submitted	Please submit		
10.	The flameproof enclosure shall be suitable in all aspects for the offered digital indicators(2 nos). Certification in this regard shall be submitted along with the technical bid.	Please submit relevant documents		
11.	Offered item includes all accessories mentioned in section 4.0: Table-1	Please confirm		
12.	Certification by CIMFR &PESO for flameproof enclosure that permits usage of flameproof items in the defined hazardous area shall be submitted along with the technical bid	Please submit		
13.	Erection of offered items at site forms scope of the bidder.	Please note and confirm		
14.	Bidder shall be an OEM of offered digital indicators.			
15.	Bidder shall have 10 years or more experience in manufacturing Flameproof digital indicators for weighing/overload sensing systems.			
16.	Bidder shall have executed a single order worth Rs 15 lakhs or more, for supply, Installation, testing and commissioning of Flameproof digital indicators based weighing/overload sensing systems.			
17.	The company shall have ISO 9001 certification for manufacturing and supply of load cell based weighing/ overload sensing systems			

18.	The offered models of flameproof digital indicators should be in the market for period of 5 years or more by date 15-05-2024.			
19.	Bidder should have his own in-house laboratory for verifying functionality of offered Flameproof digital indicators. The lab shall be accredited by NABL,India / National or international accreditation agency.			
20.	If flameproof enclosure is bought out item then, OEM of flameproof enclosure should also have 10 years or more experience in manufacturing flameproof enclosures.			
21.	If flameproof enclosure is bought out item then, OEM of flameproof enclosure shall have valid BIS certification/approvals for manufacturing of explosion proof electrical equipment. The company shall have ISO 9001 certification for manufacturing and supply of explosion proof electrical equipment			
22.	As all the tendered items are inter-related, the cost comparison will be done on the total cost of all items put together and overall L1 meeting all tender specifications will be considered.	Please note and confirm		
23.	Safety of workmen engaged by the supplier is whole & sole responsibility of the supplier. Safety belts, safety gadgets etc forms scope of the supplier.	Please note and confirm		
24.	Bidder shall sign & stamp each page of the tender document including Annexure as token of his	Please submit		

