

**Office of the Project Director Madhya Pradesh Skills Development Project,
Directorate of Skill Development, Madhya Pradesh
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Addendum 1: - Clarification to the Pre-Bid Queries

Project No: 3710-IND/ Madhya Pradesh Skills Development Project

Name of Goods/Package: MPSDP/GSP/Equipment/12, Electrical- Special Trainers for GSP

Invitation for Bids No.: MPSDP/GSP/13/2022-23, Dated: 04.11.2022

Employer: “The Project Director, Madhya Pradesh Skills Development Project, Directorate of Skill Development, Madhya Pradesh - 462023

Date and Time of Pre-Bid Meeting: 14.11. 2022, Time 14:30 hrs.

Queries raised by Bidders on the bidding document and Amendment acceptable by Technical Committee:

S. NO.	Name of Items	Clause of Bid Document	Technical Specifications	Queries raised by prospective bidders	Amendment Proposed by MPSDP Technical committee
1	3-phase fault simulator for motor	Section -6, Item 1 Technical specifications	<p>Item Name: 3-phase fault simulator for motor</p> <p>Figure shows an illustrative reference of the item intended for procurement. Picture is not intended to recommend or suggest any make or model.</p> <p>Application: The fault simulator is used in connection with all three-phase squirrel-cage asynchronous machines Key Features and Technical Specifications: The fault simulator should comprise of a lockable steel housing which is attached to the motor's terminal board using 4mm plugs. Fault simulation should be performed with the power switched off. The following practical fault combinations should be possible through an appropriate number of switches:</p> <ul style="list-style-type: none"> • Break in the windings • Short-circuit to housing • Winding to frame short-circuit • Intertwining fault <p>Accessories: All accessories and essential spares required for the full feature functioning of the Fault simulator.</p>	Requested to add the Rating of Motor also	Added Rating of Motor – 3 HP, 3 Ph, Induction Motor

2	AC Motor Control Panel	Section -6, Item 2 Technical specifications	<p>Item Name: AC Motor Control Panel</p> <p>Figure shows an illustrative reference of the item intended for procurement. Picture is not intended to recommend or suggest any make or model.</p> <p>Technical Specifications: Should Consist of the following minimum components</p> <ul style="list-style-type: none"> • Box enclosure with DIN rail mounting bracket – Refer drawing in Fig-2 • 2Pole Isolator • 2Pole RCCB • 10A MCB 2 pcs • 20A MCB 2pcs • Contactor with thermal overload relay – Refer Fig 3. • Timer relay - refer Fig 4 • Momentary push button (N.O. contact and N.C. contact) • Pilot lamps (1 red and 1 green). • Any other item found essential. <p>Accessories: All accessories required for the functioning of the Unit</p>	<p>Requested to clarify Compatibility</p> <p>Rating of Timer</p> <p>Switchgear rating</p>	<p>Added Suitable for 1 HP, single Phase, Induction Motor with AC drive of 1 HP</p> <p>Timer relay of suitable rating</p> <p>Switchgear rating suitable for 1 HP</p>
3	AC variable speed drive system	Section-6, Item 3 Technical Specifications	<p>Item Name: AC variable speed drive system</p> <p>Figure shows an illustrative reference of the item intended for procurement. Picture is not intended to recommend or suggest any make or model.</p> <p>Key Features and Technical Specifications: Controller mounted on board of dimension (Approx.): 400mm x 400mm Consisting of 0.5 Hp VFC, 220-380V Motor Power: 0.5 HP - 3 HP Input Voltage: 220-380V, Frequency: 50Hz The controller</p>	<p>Requested to clarify the rating of the Controller and Drive.</p> <p>To remove 2.4 Panel DC ammeter of suitable rating 2.5 Panel DC Voltmeter of suitable</p>	<p>Amendment</p> <p>Controller mounted on board of dimension (Approx.): 400mm x 400mm Consisting of 3 HP VFC, 415 V Motor Power: 3 HP</p> <p>Amendment 2.4 Panel ammeter of suitable rating 2.5 Panel Voltmeter of suitable rating</p>

			<p>with all its terminals are to be brought up to a console for easy bi-pole connection, with proper terminal labels affixed on plate.</p> <p>2. Console for control and monitoring of dimension (Approx.): L290 xW225xH100mm tapers to 40mm. The console shall comprise the followings items are connected to bi-pole terminals:</p> <p>2.1. Push button (B1 & PB3 -momentary type) and Pushbutton PB 2-push to OFF and lock</p> <p>2.2 Selector Switch SS1, SS2 & SS3</p> <p>2.3 Light indicator, DC lamp-PL1, PL2 and 230VAC lamp type PL3 .PL4</p> <p>2.4 Panel DC ammeter of suitable rating</p> <p>2.5 Panel DC Voltmeter of suitable rating</p> <p>2.6 Input for 24VDC power supply (Bi-pole terminals)</p> <p>2.7 Input for C 230V supply (Bi-pole terminals)</p> <p>Accessories: All accessories and essential spared required for the full feature functioning of the drive system.</p>	<p>rating</p> <p>2.6 Input for 24VDC power supply (Bi-pole terminals)</p>	<p>Deleted 2.6 Input for 24VDC power supply (Bi-pole terminals)</p>
4	DC Drive Training System	Section-6, Item 4 Technical Specifications	<p>Name of the Item: DC Drive Training System</p> <p>Figure shows an illustrative reference of the item intended for procurement. Picture is not intended to recommend or suggest any make or model.</p> <p>Application: The system should be able to be used to conduct experiments covering characteristics, speed control & trouble shooting of DC drives.</p> <p>Key Features and Technical Specifications: Type: 240/415V DC Version The DC Drive Training system should consist of the following minimum items;</p> <ul style="list-style-type: none"> DC motor coupled with belt and pulley mechanism and its 1 HP Drive and control panel with necessary meters 		<p>Deleted DC motor coupled with belt and pulley mechanism and its 1 HP Drive and control panel with necessary meters</p> <p>Amendment DC Shunt motor of 1 HP coupled with belt and pulley mechanism and its 1 HP Drive and control panel with necessary meters must be provided</p>

			<ul style="list-style-type: none"> • Box enclosure with power lock down switch, MCB, RCCB, control components • Control panel with 'START', 'STOP', Emergency stop and connections • Electrical wiring <ul style="list-style-type: none"> • 600mm, 0.75mm² cable with banana connections at both ends (10pcs) • 1000mm, 0.75mm² cable with banana connections at both ends (8pcs) • Banana connectors shall be stackable • Should include Training manual with solutions <p>Accessories: All accessories required for the functioning of the Unit.</p>		
5	Photovoltaic Grid Tied System	Section No-6 Item No. 6	<p>Item Name: Photovoltaic Grid Tied System</p> <p>Figure shows an illustrative reference of the item intended for procurement. Picture is not intended to recommend or suggest any make or model.</p> <p>Technical Specifications: The System consists of 2 sections. Details are given under Technical Specifications.</p> <ul style="list-style-type: none"> • Section A • Section B <p>Section A - Mobile work station with an on- grid PV system</p> <p>1.1 Electrical Balance of System accessories mounted and prewired on perforated metal frame</p> <p>1.2 Panel is mounted to reinforced profile structure</p> <p>1.3 Pre-mounted trunking and ducting to facilitate wiring and routing of cables. Balance of System Components are pre-mounted on board for Grid-Tie PV system with circuit completely wired and tested.</p> <p>1.4 Control panel should be provided with power flow diagrammatic representation</p> <p>1.5 Electrical Balance of system must comprise of the following minimum components/accessories:</p>	Regarding following AC consumer unit (comprise 40A Isolator, 40A RCB (0.03A trip), 4 number MCBs, 1 AC Surge Suppression Device)	<p>Deleted AC consumer unit (comprise 40A Isolator, 40A RCB (0.03A trip), 4 number MCBs, 1 AC Surge Suppression Device)</p> <p>Amendment: AC consumer unit (comprising of Isolator, RCB, 4 number MCBs, 1 AC Surge Suppression Device of suitable rating)</p>

- DC array Isolator with MC4 connector terminated to receive external solar cable connection to PV Solar Array
- 2 sets of MCBs for DC Array and Controller protection; din mounted with terminal blocks to connect for multi-positive, negative and earth connections.
- MPPT type Charge Controller with provision for DC external loads and connection to inverter
- Grid Tie AC Inverter of suitable rating not less than 1KVA, MPPT type, with input range of 40V to 124V max, output 230V, 50 Hz, pure sine wave type
- smart meter unit
- AC Isolator
- AC consumer unit (comprise 40A Isolator, 40A RCB (0.03A trip), 4 number MCBs, 1 AC Surge Suppression Device)
- Provision for earthing terminations for both DC and AC connection
- All components' rating selected must comply to approved IEC standard and meeting local regulation on over current and earth protection requirements. Cable provided must be of appropriate colour codes and sizes meeting local PV regulation requirement.

Section B

Roof top structure to be provided with Solar panels for appropriate generation of electricity to test real time power output in actual Solar irradiance

PV Module and array requirement

2.1 Monocrystalline PV modules pre-mounted and connected with following requirement on each PV module

- PV array should be of 1kWatt rating with each panel should have approx. open circuit voltage Voc(v): 43V or better
- Short Circuit Current Isc(A): 7 A or better

Each module to be connected with bypassed diode in junction box which can be accessible for inspection and testing. The

			<p>positive and negative terminal of module terminated in MC 4 connectors and properly labelled '+' and '-' terminal wires. Parallel MC4 connectors with solar wire and MC 4 straight connector assembly to be of sufficient length and number to be able to connect up the 4 modules for series or parallel configuration training.</p> <p>2.2 The PV modules are to be mounted on inclinable plane and the plane is lockable at 0, 15,30, 45, 60, 75 & 90 degree relative to horizontal position respectively.</p> <p>3. Vendors should provide the full designs of a workable model for evaluation.</p> <p>Accessories: All accessories and essential spares required for the full feature training of the set should be provided.</p>		
6	Photovoltaic Stand Alone System	Section-6 Item No. 7	<p>Item Name: Photovoltaic Stand Alone System</p> <p>Figure shows an illustrative reference of the item intended for procurement. Picture is not intended to recommend or suggest any make or model.</p> <p>Technical Specifications: This system consists of two parts, Panel Set - A and Panel Set - B.: Panel set A for wiring and panel set B for PV array connection Panel Set A Approx. Dimensions: 880mm L x840mm W x 1360mm H – Indicative only 1.1 Swivel caster wheels (4 no's) with 2 locking mechanism Balance of System components pre-mounted Trunking and ducting to facilitate wiring and routing of cables Following minimum Components pre-mounted on board for off Grid PV system circuit:</p> <ul style="list-style-type: none"> • DC array Isolator with MC4 connector terminated to receive external solar cable connection to PV Solar Array • 2 sets of MCBs for DC Array and Controller protection 	<p>Regarding rating of following</p> <p>AC Inverter, input 12V to 24V, output 230V, 50 Hz, type pure sine wave type</p> <p>AC consumer unit complete with DP MCB isolator, RCB, SPD,10A MCB, 20A MCB,20A MCB</p>	<p>Amendment:</p> <p>AC Inverter of 1KVA, input 12V to 24V, output 230V, 50 Hz, type pure sine wave type</p> <p>AC consumer unit complete with DP MCB isolator, RCB, SPD, MCB of suitable rating</p>

- Charge Controller with provision for battery charging, DC external loads and connection to inverter; Have display value on Voltage, current.
- Battery Disconnect Switch
- Battery 100 AH ,12V deep cycle Lead Acid battery
- AC Inverter, input 12V to 24V, output 230V, 50 Hz, type pure sine wave type
- AC Isolator
- AC consumer unit complete with DP MCB isolator, RCB, SPD,10A MCB, 20A MCB,20A MCB
- Provision for earthing terminations for both DC and AC connection
- Control panel should be provided with power flow diagrammatic representation

1.2 All components' rating selected must comply to approved IEC standard and meeting local regulation on over current and earth protection requirements.

1.3 Cable provided must be of appropriate colour codes and sizes meeting to approved IEC PV regulation requirement.

Panel Set B

2.1 PV Module and array requirement are listed below:

2.2.1 Four PV Polycrystalline modules pre-mounted and connected with following requirement on each PV module

- Power = 375 W Minimum
- Voltage = 18V or better
- Isc =8A or better
- Voc = 43V or better

2.2.2. Each module to be connected with bypassed diode in junction box and which is accessible for inspection and testing.

The positive and negative terminals are terminated in MC 4 connectors and properly labelled terminal '+ve' or '-ve' wires.

2.2.3 Parallel MC4 connectors with solar wire and MC 4 straight connector assembly to be of sufficient length and number to be able to connect the 4 modules in series or parallel configuration for training.

			<p>2.2.4 The modules are to be mounted on inclinable plane which is lockable at 0, 15, 30, 45, 60, 75, 90 degrees to horizontal position respectively.</p> <p>Accessories: All accessories and essential spares required for the full feature training of the set should be provided.</p>		
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• Others terms and conditions and Specifications will remain unaltered

Dated: 18 / 11 /2022

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Project Director