



## SUPPLEMENTAL/BID BULLETIN

### **BID BULLETIN NO. 2**

5 September 2023

Name of Project: **Procurement of Learning Equipment and Systems for the 2021 Regional TVET Innovation Centers (RTICs)**

Pursuant to Section 22.5 of the Revised Implementing Rules and Regulations of Republic Act No. 9184, this Bid Bulletin No. 2 is being issued to amend Bid Bulletin No. 1 dated 24 August 2023 specifically on the technical specifications of the item for Lot 2-A (Industrial Automation PKG 1).

Kindly refer on the revised Section VII of the Bidding Documents incorporating the amendments on Lot 2-A (Industrial Automation PKG 1).

For the information and guidance of all concerned.

  
**DDG ANICETO D. BERTIZ III**  
Chairperson   
Bids and Awards Committee – A

# Technical Specifications

**Lot 2-A**

**: Industrial Automation PKG 1**

No.	Item	Minimum Agency Specifications Unless Otherwise Specified	Qty	Unit	Statement of Compliance *	Make Brand / Model	Reference
1	Pressure, Flow, Level, Temperature Process Learning Systems	Kindly refer to the technical specifications attached as <b>Revised Annex D2-A.</b>	1	set			

\* Bidders must state here either "Comply" or "Not Comply" against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of "Comply" or "Not Comply" must be supported by evidence in a Bidders Bid and cross-referenced to that evidence. Evidence shall be in the form of manufacturer's un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidder's statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the applicable laws and issuances.

All tools, equipment, gadgets and electrically operated instruments should have Standard Manufacturers Manual and/or Datasheet/Specification Sheet/Brochure as indicated in Revised Annex D2-A.

Instruction Manual is an instructional book or booklet that is supplied with almost all technologically advanced products such as electrical products.

Datasheet/Specification Sheet/Brochure is a document that summarizes the performance and other characteristics of a product, machine, component that comes along with the product from its release from the manufacturer.

I hereby certify that the statement of compliance to the foregoing technical specifications are true and correct, otherwise, if found to be false either during bid evaluation or post-qualification, the same shall give rise to automatic disqualification of our bid.

<b>Name of Company/Bidder</b>	<b>Signature over Printed Name of Authorized Representative</b>	<b>Date</b>
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**REVISED  
ANNEX D2-A**

Lot No.	Lot	Code	Item	Agency Specification	Classification	Test Procedure (Post Evaluation)	Test Procedure (Inspection and Acceptance)	English Manual
2	Industrial Automation	02-001	Pressure, Flow, Level, Temperature Process Learning Systems	Refer to Technical Specification of Item Code 02-001	Learning System	Evaluation of Brochure with picture and/or data sheet and training proposal	<ul style="list-style-type: none"> <li>- Checking the conformity with the quantity including parts and accessories</li> <li>- Checking the conformity of hardware vis-a-vis offered specifications</li> <li>- Functionality testing</li> </ul>	Yes

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\_\_\_\_\_  
Name of Company/Bidder

\_\_\_\_\_  
Signature over Printed Name of Authorized Representative

\_\_\_\_\_  
Date



## TECHNICAL SPECIFICATION

<b>Name of the Equipment</b>	<b>Pressure, Flow, Level, and Temperature Process Learning Systems</b>
<b>Item Code</b>	02-001
<b>Technology Area(s)</b>	Industrial Automation

### General Description

This training equipment simulates an automated industrial process control using distributed control system and programmable control system PLC technologies. With this equipment, one can learn to control or monitor industrial process, configuration of instrumentation devices, programming of PLC debugging of programs and operation and monitoring of automated process control systems.

#### Required Topics/Benefits:

- Installation and Application of PLC Programming software
- Programming and Application of DCS Control System
- Application of DCS Communication System
- Application of Process Control mounting pipes
- Application of Pressure Transmitter
- Application of Temperature Transmitter
- Application of Flow Transmitter
- Application of Level Transmitter
- Application of Pneumatic and Electric Control Valve
- Application of Disconnect Switch and Emergency Push-Button
- Application of AC Drives
- Programming and Application of HMI
- Application of venturi tube and Rotameter

#### Technical Description

- **Description of system operation**  
This training simulator will consist of the following sub-system

No	Training Platform	Qty	Unit Measure
1	<p>Mini-industrial process/System process</p> <p><i>This Training equipment is a modular demonstrator unit capable of showing real-life process applications across a wide range of industries including water and wastewater, oil refining, petrochemical, and food processing. The system features two (2) level PID control loops working simultaneously to maintain a stable level in each column even when disturbance occurs. The system can be used to train students on the instruments used to control or monitor industrial processes including temperature, pressure, flow and level process variables.</i></p>	1	set

No	Training Platform	Qty	Unit Measure
2	Intelligent measurement and control system <i>DCS system can support multi-domain control and operation, and has multi-programming language support in compliance with IED international standards; including SFC, CFC, ST, LD or equivalent languages, the system has fail-safe functions and complete project management functions. The system is compatible with MODBUS, HART and other international standard field buses. The system should allow a real-time monitoring of subsystems.</i>	1	set
3	Visualization platforms <i>This is composed of computer/s where the dashboard on process variable status and process simulation are displayed accessible in local computers/devices</i>	1	set
4	Training platform <i>This includes reference materials, exercised/activities (20+ activities), 1 set of tools needed to service the equipment, and 1 spool of electrical wires (per color used in the system).</i>	1	set

- **System Hardware**

- **Process Section**

Qty	Description
1	Process Workstation
1	Venturi Tube
1	J-Type Thermocouple
1	Rotameter
1	Temperature Transmitter compatible with RTD/thermocouples
1	Solenoid Valve
1	Pneumatic Control Valve with I/P converter
2	Centrifugal pumps
1	Large Column
1	Small Column
1	Process Supports
1	Stainless Drip Tray (Front)
1	Stainless Drip Tray (Back)
1	Piping and Accessories
2	Instrumentation Mounting Pipe
1	Magnetic Flow Transmitter
1	Radar Level Transmitter
1	Radar Remote Display
2	Differential Pressure Transmitter
1	Differential Pressure Transmitter
1	Three-valve manifold



- **Control Section**

Qty	Description
1	Emergency Switch
1	Main Disconnect
1	Controller with 4MB of RAM
1	Ethernet/IP Communication Card
1	16 Analog Input Module
1	8 Analog Output Module
1	16 pt Digital Input Module
1	16pt Digital Relay Module
2	1-HP AC Drive
1	FOUNDATION Fieldbus - Ethernet/IP Bridge
1	Profibus PA Bridge - Ethernet/IP
1	Redundant FF 4 Way Junction Box
1	Fieldbus 6 way Junction Box
1	Power Supply XLE 120W
1	Industrial managed switch (10 ports)
1	23-inch Touch Screen Computer i7 core processor with mobile mount
1	Signal Tower (Red, Yellow, Green)

- **General Parameters**

- Working power supply 200 – 240V 60Hz single phase (a transformer should be provided if the system requires other power supply)
- Protection: Overpressure, over temperature, and liquid level alarm and emergency stop.
- Overall size should not be greater than 2m (width) x 3m (height) to ensure that ingress of the machine will not be an issue.
- Computer for programming should be Windows 11 compatible, 20 cores, 32 GB RAM, 1TB SSD, 2TB HDD, 2x 1Gbit LAN port and dual 27-34 incels monitor with 2k resolution and 21:19 or 16:9 image aspect ratio.
- DCS controller
  - Supports PROFIBUS/HART/FOUNDATION and other common international fieldbus. Third party devices such as intelligent instruments, PLCs and inverters or equivalent are easily added.
  - Centralized supervision in real time
- Programmable Logic Controller/s
  - Ethernet and other communication standards
  - Support cloud-based monitoring and control
  - With digital and analog I/Os
  - Expandable centrally and on distributed basis

- Field devices
  - Pressure Transmitter, 1-100 Kpa 4-20mA, HART protocol
    - Best accuracy, reproducibility and long-term stability
    - Highest safety due to gas tight feedthrough with capabilities up to SIL2/3, certified to IEC 61508
    - Easy menu-guided commissioning via local display
    - History ROM data management concept for fast and easy commissioning, maintenance and diagnostics
  - Level Transmitter 0-5 KPA 4-20mA, HART protocol
    - Level measurement under extreme conditions
    - Process connection: 1½" thread/Tri-Clamp/flange
    - Accuracy: ±2 mm
    - Integrated data memory for high availability
  - Temperature Transmitter 0-100C 4-20mA, HART or FOUNDATION protocol
    - High reliability in harsh industrial environments due to dual compartment housing and compact, fully potted electronics
    - Backlit display with large measured value, bar graph and status condition indication
    - International approvals such as FM, CSA (IS, NI, XP and DIP) and ATEX
    - Galvanic isolation 2 kV (sensor input / current output)
  - Flow Transmitter 4-20mA HART or Ethernet protocol
    - Diverse applications – wide variety of wetted materials
    - Energy-saving flow measurement – no pressure loss due to cross section constriction
    - Maintenance-free – no moving parts
    - Full access to process and diagnostic information – numerous, freely combinable I/Os and fieldbuses
    - Reduced complexity and variety – freely configurable I/O functionality
  
- Software compatible to latest release of Windows
  - PLC Programming Software
  - Visualization design(P&ID) software
  - DCS Monitoring and Supervision software
  
- Set of tools for equipment servicing including calibration kit
  - The Calibration Kit includes the equipment required to precisely adjust the control valves and to perform diagnostic tests on electrical devices. The kit contains a multifunction process calibrator which can act as a source and measure different parameters. A calibration pump completes the kit and is used to calibrate pressure devices.



- This includes curriculum and instruction to exercises in print and digital format
- Extra hoses and electrical wires

Sample Image:



*Picture for reference only*

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Company/Bidder**

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**Date**