College of Western Idaho (CWI)

Invitation to Bid (ITB) 01-2025 Amended 1 (5/19/25TP)

Mechatronics Equipment

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1 INTRODUCTION

The College of Western Idaho (CWI) is a public, open-access, and comprehensive community college serving residents of Western Idaho, with facilities located in Nampa and Boise. CWI is dedicated to providing affordable, high-quality education through a wide range of academic and professional-technical programs, including Associate degrees, transfer degrees, certificates, continuing education, and fast-track career training.

As part of its commitment to workforce readiness, CWI is currently procuring equipment for its Mechatronics Department to support hands-on, industry-relevant training that aligns with the evolving needs of the region's advanced manufacturing and automation sectors.

2 INQUIRIES

Questions or other correspondence must be submitted in writing to the ITB Lead listed below. **QUESTIONS MUST BE RECEIVED BY 5:00 P.M. Mountain Time.** Written questions must be submitted using **Attachment 1,** Bidder Questions. Official answers to all written questions will be posted on IPRO as an amendment to this ITB.

Procurement Manager: Thayne Pearson
Phone: 208-562-2206
E-mail: thaynepearson@cwi.edu

Any questions regarding the CWI Standard Contract Terms and Conditions found at (Attachment X – Sample Contract) must also be submitted in writing, using **Attachment 1,** Bidder Questions, by the deadline identified on the CWI Procurement website (Procurement - Contracts & Purchasing). Questions regarding these requirements must contain the following:

1. The rationale for the specific requirement being unacceptable to the party submitting the question (define the deficiency).
2. Recommended verbiage for CWI's consideration that is consistent in content, context, and form with CWI's requirement that is being questioned.
3. Explanation of how CWI's acceptance of the recommended verbiage is fair and equitable to both CWI and to the party submitting the question.

3 PURPOSE

The College of Western Idaho (CWI) is requesting Bids from qualified Vendors for the purchase of various equipment, tools and furniture for classrooms in accordance with the specifications provided below. Bidders must be able to provide the exact brand, make and model of the equipment or their bid may not be considered for award.

4 SPECIFICATIONS

Specifications can be found on Attachment 3 – Specifications. The manufacturer name and code provided are for descriptive purposes only and are not intended to be restrictive. Any offeror who can demonstrate that their product meets or exceeds the specifications outlined by the manufacturer will be considered for award. The intention is to establish a minimum standard, and alternative solutions will be evaluated based on their ability to meet or exceed these requirements

5 QUANTITY

Quantities are listed on Attachment 2 – Bid Schedule. Quantities are estimated amounts needed. CWI reserves the right to increase or decrease quantities at any time during the life of the contract.

6 COST

Provide your fully burdened Total Cost on the Fee Structure (**Attachment 2**).

7 INVOICING

Only invoices will be considered acceptable for payment processing. The College will not process payments for any documents submitted in the form of quotes, statements, or similar non-invoice documents, and such submissions will be returned to the Contractor. Each invoice must include a clear and detailed description of the items delivered or services rendered.

8 SUBMISSION REQUIREMENTS

8.1 Required Bid Submission Items

Your Bid Submission must consist of the following:

8.1.1 **Fee Structure** - **Provide** your cost information on Attachment 2, Fee Structure, below. Do not submit your Bid on any other form. Submitting your Bid on a form different than the Bid Schedule may cause your Bid to be rejected as non-responsive.

8.1.2 List other required response items – Appendix A Signature Sheet, Appendix D Conflict of Interest/Debarment, Specification sheets, warranty.

8.2 Bid Submission Methods

Bids may be submitted electronically via email or manually in a sealed envelope/package. Your Bid must be received at the CWI by the date and time specified in Section 8.2.2. The official time, for bid closing purposes, is the CWI time clock.

8.2.1 Manual Submission

Manual Submission (via U.S. Mail, courier or hand-delivery) shall be in a single sealed envelope with a tracking number and all Required Bid Submission Items. The label on the envelope must be addressed as follows:

College of Western Idaho
Attn: ITB 01 – 2025 Mechatronics Equipment
c/o Thayne Pearson, Procurement Manager
6056 Birch Lane, Nampa, ID 83687

All Bid submissions must include one (1) set in hard copy format and one (1) electronic copy on a USB Flash Drive. Or, as a PDF attachment to an email.

Once sealed bids are received, no other communication with CWI should occur. Any other communication will be considered unofficial and non-binding on CWI.

8.2.2 Schedule of Events

Invitation to Bid Issued and Advertised	5/9/2025 and 5/16/2025
Question Period Ends	5/16/2025
Questions and Answers Posted	5/20/52025
Bids Due	5/23/2025
Bid Opening	5/27/2025

8.3 Bid Opening

All Bids received by the time and due date will be publicly opened by representatives of CWI on May 27, 2025, at 9:00 AM MT at the College of Western Idaho Administration Building, 6056 Birch Lane, Suite 200, Nampa, Idaho. At the time of opening only the names of the Bidders will be shared. The opening document with the names of the Bidders will be shared publicly on CWI's website.

8.4 **Errors in Bids**

CWI will not be liable for any errors in Bids. Modifications to Bids will not be accepted after the deadline.

8.5 **Withdrawing Bids**

Bidders may withdraw a Bid at any time prior to the deadline by submitting an email to thaynepearson@cwi.edu sent by an authorized representative of the Bidder. After withdrawing a Bid, the Bidder may submit another Bid at any time prior to the Bid due date.

8.6 **Limitations**

The College will not be obligated in any way by any Bidder's response to this ITB. Selection of a Bid and the accompanying award of a contract are to be based on evaluation criteria established in this ITB and described in the Evaluation and Award Section. The selection is at the sole discretion of the College.

The issuance of this ITB does not constitute an assurance that any contract will be entered into by any parties and the College expressly reserves the right to:

8.6.1 Request additional information and data from any or all Bidders.

8.6.2 Supplement, amend, or otherwise modify the ITB or cancel this request with or without the substitution of another ITB.

8.6.3 Disqualify any Bidder who fails to provide information or data requested herein or who provides inaccurate or misleading information or data.

8.6.4 Disqualify any Bidder on the basis of any real or apparent conflict of interest.

8.6.5 Disqualify any Bidder on the basis of past performance on other projects.

8.6.6 College may negotiate with any Bidder to this ITB and shall have the sole discretion to choose the best combination of qualifications and price for the project and services described in this ITB.

8.6.7 College shall have the sole discretion to select one or none of the Bidders to provide the services, or portions thereof, as described in this ITB.

8.7 Public Records

Pursuant to Idaho Code section 74-101 et seq., information or documents received by CWI in a Bid from a Bidder may be open to public inspection and copying following the announcement of a contract award, unless exempt from disclosure. If a Bid contains any information that is considered exempt under Idaho Code 74-101 et seq., such information must be clearly marked with the following clause:

"This information is exempt under the Idaho Public Records Act"

Bidder must also provide the applicable Idaho code supporting the exemptions. College assumes no liability for disclosure of proprietary material submitted by a Bidder. Bidders agree to defend and hold CWI harmless from and against any disputes arising from their designation of information as exempt and to indemnify CWI for any costs, attorney fees, and penalties incurred by CWI related to any such dispute. Variation of this term is not offered.

A Bidder shall not label an entire document as "exempt" merely because a portion of that document is or may be a trade secret. If a Bid is marked as "exempt" in its entirety, it will be considered public record in its entirety, and will be disclosed, if requested.

8.8 Trade Secrets

If your Bid contains trade secret information which you have identified, you must also submit a redacted copy of the Bid with all trade secret information removed or blacked out; as well as a separate document containing a complete list of all trade secret information which was removed or blacked out in the redacted copy.

9 AWARD

Award will be made to the responsive responsible Bidder with the lowest fully burdened Total Cost per Table, as provided on the Bid Schedule. **CWI reserves the right to award by line item, group of line items, or all to one in Table 4 Curriculum based items.**

This Invitation to Bid (ITB) includes a unique feature wherein specific brands of personal property are identified; however, alternate equipment that meets the stated functional requirements will also be considered. To ensure fairness and clarity, the evaluation process for alternatives will involve a faculty member reviewing the proposed specifications to determine if they satisfy the necessary criteria. While pricing typically serves as the primary factor in standard bids, this ITB includes an additional qualitative assessment to ensure the selected equipment is adaptable to the specific needs and evolving requirements of the curriculum.

10 INSTALLATION

Installation is not required for all items within the bid; additional shipping steps may be necessary for larger items. Provide documentation for all software and hardware, as well as an operator's manual if included with the item. Complete all required shipment and installation no later than August 1, 2025. All items are required for the Fall 2025 fiscal year. Items on backorder will be reviewed and approved on a case-by-case basis in accordance with new tariff requirements and part shortages.

11 ACCEPTANCE

No item requires extensive testing or implementation; however, some items are large and must be handled with care. Acceptance of items will be determined based on whether the awarding category meets the least financial

burden for CWI and if all specifications are met, a delivery estimate is required per each submission of a bid. A warranty/return and replace is required for all items that are not in a discontinued or discontinuing state.

12 TRAINING

No training is expected for equipment. Proposed equipment that requires training from bidder must be included in the fully burdened total cost on Attachment 2 – Bid Schedule.

13 WARRANTY, SERVICE AND SUPPORT, MAINTENANCE, ETC.

Support requests for warranty via Help Desk or email are anticipated. There is no minimum warranty period expected.

14 DELIVERY

Delivery must be FOB destination and completed by August 1, 2025, to meet the requirements for the Fall 2025 fiscal year. Items on backorder will be reviewed and approved on a case-by-case basis, considering new tariff regulations and part shortages.

15 SUBCONTRACTORS

Unless otherwise allowed by the College in this Contract, Contractor shall not, without written approval from the College, enter into any subcontract relating to the performance of this Contract or any part thereof. Approval by the College of Contractor's request to subcontract or acceptance of or payment for subcontracted work by the College shall not in any way relieve the Contractor of any obligation under this Contract. The Contractor shall be and remain liable for all damages to the College caused by negligent performance or non-performance of work under the Contract by Contractor's subcontractor or its sub-subcontractor. Except where the College has approved in writing a Contractor subcontract with other insurance provisions, Contractor must require all its subcontractors under this Contract to purchase and maintain the insurance coverage set forth in the Contract for the Contractor in connection with the performance of work by the approved subcontractor.

16 PRICE ADJUSTMENT CLAUSE

The total cost submitted in this ITB shall be a firm, fixed price and shall not be subject to adjustment for the first one (1) year from the effective date of this agreement.

Price adjustments will only be permitted upon written request by the Contractor, reflecting changes in costs of materials, labor, or other direct factors impacting the pricing of the services/products provided under this agreement. The adjustment request shall be made no later than thirty (30) days prior to the renewal date of the agreement.

17 RECORDS MAINTENANCE

Contractor shall maintain or supervise the maintenance of all records necessary to properly account for all payments made to the Contractor pursuant to the Contract. These records shall be retained by the Contractor for at least three (3) years after the Contract terminates, or until all audits initiated within the three (3) years have been completed, whichever is later.

18 AUDIT RIGHTS

The Contractor agrees to allow State and Federal auditors and CWI purchasing staff access to all the records relating to this Contract, for audit, inspection, and monitoring of services or performance. Such access will be during normal business hours or by appointment.

ATTACHMENT 1-BIDDER QUESTIONS

ITB 01-2025 MECHATRONICS EQUIPMENT

The following instructions must be followed when submitting questions using the question format on the following page.

1. DO NOT CHANGE THE FORMAT OR FONT. Do not bold your questions or change the color of the font.
2. Enter the ITB section number that the question is for in the "ITB Section" field (column 2). If the question is a general question not related to a specific ITB section, enter "General" in column 2. If the question is in regards to a Term or Condition, state the clause number in column 2. If the question is in regard to an attachment, enter the attachment identifier (example "Attachment A") in the "ITB Section" (column 2), and the attachment page number in the "ITB page" field (column 3).
3. Do not enter text in the "Response" field (column 5). This is for the State's use only.
4. Once completed, this form is to be e-mailed per the instructions in the ITB. The e-mail subject line is to state the ITB number followed by "Questions."

	ITB Section	ITB Page	Question	Response
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ATTACHMENT 3 - SPECIFICATIONS

ITB 01-2025 Mechatronics Equipment

1. **Electronic Equipment** – *The manufacturer name and code provided are for descriptive purposes only and are not intended to be restrictive. Any offeror who can demonstrate that their product meets or exceeds the specifications outlined by the manufacturer will be considered for award. The intention is to establish a minimum standard, and alternative solutions will be evaluated based on their ability to meet or exceed these requirements*:

1.1. Transistor Tester - 2013-1002-ND

- 1.1.1. Connect any way around
- 1.1.2. Automatic component type identification
- 1.1.3. Automatic pinout identification
- 1.1.4. Transistor gain measurement
- 1.1.5. Enhancement mode MOSFET gate threshold measurement
- 1.1.6. PN junction characteristics measurements
- 1.1.7. Leakage current measurement
- 1.1.8. Auto power off

1.2. Analog Voltmeter (VOM) – Simpson - 260-8XPi

- 1.2.1. DC Voltage
  - 1.2.1.1. Ranges 250mV, 1V, 2.5V, 10V, 25V, 50V, 250V, 500V, 1000V
  - 1.2.1.2. Accuracy 2% of full scale
  - 1.2.1.3. Sensitivity 20K per volt
- 1.2.2. AC Voltage
  - 1.2.2.1. Ranges 2.5V, 10V, 25V ,50V, 250V, 500V, 1000V
  - 1.2.2.2. Accuracy 3% of full scale
  - 1.2.2.3. Sensitivity 5K per volt
  - 1.2.2.4. Rated Circuit-To-Ground Voltage 1000V AC/DC Max
- 1.2.3. Decibel
  - 1.2.3.1. 5 Ranges -20 to +50dB
  - 1.2.3.2. Reference 0dB= 1mW into 600Ω
- 1.2.4. DC Current
  - 1.2.4.1. Ranges 50µA, 1mA, 10mA, 100mA, 500mA, 10A
  - 1.2.4.2. Accuracy 1.5% full scale 5OµA, 2.0% of full scale, all other
  - 1.2.4.3. Voltage Drop: (Nominal) 250 mV on 50µ, A/1mA, 255mV on 10mA/10A, 300mV on 100mA, 500mV on 500mA
- 1.2.5. Resistance
  - 1.2.5.1. Ranges Rx 1, Rx 100, Rx 10K
  - 1.2.5.2. Accuracy 2.5° of arc on Rx1, 2.0° of arc on other
  - 1.2.5.3. Maximum Indication 0-2KΩ, 0-200Ω, 0-20MΩ

1.3. Benchtop AC Power Supplies - B&K Precision - 1655A

1.3.1. Voltage Adjustment Rage - 0-150 VAC with input at 120 VAC
1.3.2. Output Isolation – Leakage less than 0.1 mA (25°C, 50% RH)
1.3.3. Current Range - 0-3 A
1.3.4. Maximum Current (Isolated) - 3 A continuous, 4 A intermittent (0-130 V)
1.3.5. Peak Current - 30 A max. (inrush limited to one cycle at 30 A)
1.3.6. Voltage/Current Sensing - Sine wave average, calibrated in RMS
1.3.7. Meter Scale - 0-240 VAC 0-480 VAC (voltage set at 120)
1.3.8. Leakage - 0 - 5000 µA (expanded in 100 - 500 µA portion, compressed to 5mA full scale)
1.3.9. Metering - 4 1/2 multicolor scales, overrange protected
1.3.10. Typical meter Accuracy - ±5% of full scale (volts and current) ±5% at 500 µA (leakage)
1.3.11. Soldering Iron Temperature - 70 - 99% of power line (100 W max.)
1.3.12. Control AC Input - 120 VAC ±10%, 60 Hz
1.3.13. Dimensions (H x W x D) - 10.5” x 5.7” x 12” (267 x 145 x 305 mm)
1.3.14. Weight - 22 pounds

1.4. Benchtop DC Power Supplies - Rigol DP932U

1.4.1. DP932U (University-with safety sockets): 32 V/3 A || 32 V/3 A || 6 V/3 A (Three Channel Input)
1.4.2. 3 electrically isolated independent channels with a maximum total power of up to 210 W
1.4.3. 4.3-inch LCD color touch screen
1.4.4. Front-panel safety sockets available on some models
1.4.5. Internal series/parallel connections for CH1 and CH2
1.4.6. Excellent programming/readback accuracy
1.4.7. Transient response time <50 µs
1.4.8. Low output ripple and noise <350 µVrms/2 mVpp
1.4.9. Command processing time <10 ms
1.4.10. Three rack-units (3U), 1/2-rack form factor
1.4.11. PC control
1.4.12. Timing output, data logging and analysis
1.4.13. A maximum of 512 arbitrary points with dwell time down to 100 ms; various built-in basic waveforms
1.4.14. Over voltage, over current, and over temperature protection

1.5. Cables, Alligator-Alligator - Elenco - TL-6

1.5.1. 14” length
1.5.2. 1 each red jumper clip set
1.5.3. 1 each black jumper clip set

1.6. Cables, Banana-Alligator - Elenco - TL-5

1.6.1. 36” length
1.6.2. 1 each red stackable banana to alligator clip
1.6.3. 1 each black stackable banana to alligator clip

1.7. Cables, Banana-Banana - Elenco - TL-18

1.7.1. 36” length

1.7.2. 1 each red stackable 3-way banana plugs

1.7.3. 1 each black stackable 3-way banana plugs

1.8. Cables, Banana-Miniclip - Elenco - TL-12

1.8.1. 36” length

1.8.2. 1 each red stackable banana to minigrabber

1.8.3. 1 each black stackable banana to minigrabber

1.9. Cables, BNC-Alligator – Elenco - TL-17

1.9.1. 36” length

1.9.2. BNC to alligator clips

1.10. Cables, BNC-BNC - Rigol CB-BNC-BNC-MM-100

1.10.1. 1 meter length

1.11. Camera for projector demos - Epson DC-21

1.11.1. Dimensions when open 10.6”x19.7”x12.0”

1.11.2. Dimensions when closed 14.7”x4.7”x4.8”

1.11.3. 10x digital zoom

1.11.4. 12x optical zoom

1.11.5. Automatic focus with single touch button

1.11.6. 180-degree camera head rotation both vertical and horizontal

1.11.7. HD 1080p output resolution at 30 frames per second

1.11.8. HDMI, VGA, and USB outputs and SD card slot

1.11.9. Built-in microphone and included software; one-touch A/V recording

1.11.10. Microscope adapter

1.11.11. Supports SD cards and computers

1.11.12. Easily pause and/or resume the image

1.11.13. 100-240 V AC power supply

1.11.14. 50/60 Hz power frequency

1.11.15. Operating system compatible with Windows and Mac

1.12. Function Generators - Rigol DG822 Pro - Function/Arbitrary Waveform Generator (2 Channel / 25 MHz) – Rigol - Rigol DG822 Pro

1.12.1. Dimensions to be 3.28”x10.55”x9.42”

1.12.2. 25 MHz

1.12.3. Two channel function generator

1.12.4. Minimum 2 Mpts memory depth

1.12.5. High frequency stability: ±1 ppm

1.12.6. low phase noise: -105 dBc/Hz

1.12.7. Built-in high-order harmonic generator (at most 8-order harmonics)
1.12.8. Built-in 7 digits/s, 240 MHz bandwidth full featured frequency counter
1.12.9. 160 built-in arbitrary waveforms, covering common signals in engineering, medical and automotive electronics, math processing, and much more
1.12.10. Sample rate up to 125 MSa/s
1.12.11. Vertical resolution 16 bits
1.12.12. Arbitrary waveform sequence editing function available; arbitrary waveforms also can be generated through PC software
1.12.13. Various analog and digital modulation functions: AM, FM, PM, ASK, FSK, PSK, and PWM
1.12.14. Standard waveform combine function
1.12.15. Capable of outputting specified waveforms combined with basic waveforms
1.12.16. Standard channel tracking function
1.12.17. 120/220V universal power supply
1.12.18. Internal memory with USB capabilities

1.13. GFCI Outlet Tester - Klein Tools RT310

1.13.1. Detects common wiring faults in standard, AFCI, and GFCI electrical outlets
1.13.2. Test AFCI devices by simulating arc fault conditions
1.13.3. Test GFCI devices by simulating ground fault conditions
1.13.4. Capable of detecting a dual-open wiring fault with simultaneous open neutral and open ground wires
1.13.5. Tester delivers clear visual indication of the wiring condition at the electrical outlet
1.13.6. Designed to test North American-style grounded electrical outlets in 120V AC circuits regarding a three-pin plug
1.13.7. Electrical plug is on a 10-Inch (254 mm) flexible electrical cord
1.13.8. Low battery indicator
1.13.9. Easily accessible battery compartment

1.14. Helping Hands (soldering) - Weller WLACCHHM-02

1.14.1. Base dimension 6”x9”
1.14.2. Four magnetic arms
1.14.2.1. 2 arms 8.5”
1.14.2.2. 2 arms 12.5”

1.15. LCR Meter - Keysight U1733C

1.15.1. Test frequency - 00Hz, 120Hz, 1khz, 10kHz, 100kHz
1.15.2. Resolution - 20,000 counts
1.15.3. Resistance range/accuracy - 2Ω to 200MΩ; 0.2% + 3 counts
1.15.4. Capacitance range/accuracy - 20pF to 20mF; 0.2% + 3 counts
1.15.5. Inductance range/accuracy - 20µH to 2000H; 0.2% + 3 counts
1.15.6. Wide LCR ranges, three selectable test frequencies, perform quick, basic LCR measurements affordably
1.15.7. Detailed component analysis with DCR, ESR, Z, D, Q, and ? functions

1.15.8. IR-to-USB connectivity for data logging to PC
1.15.9. Auto identification (Ai) automatically determines and displays component type, measurements
1.15.10. Backlit, dual measurement display
1.15.11. Battery life of 16 hours

1.16. Oscilloscope Probes - Rigol PVP2350

1.16.1. Bandwidth
1.16.1.1. 1X: DC to 35 MHz
1.16.1.2. 10X: DC to 350 MHz
1.16.2. Input Resistance
1.16.2.1. 1X: 1 MΩ ± 1% @ DC
1.16.2.2. 10X: 1 MΩ ± 1% @ DC
1.16.3. Rise Time
1.16.3.1. 1X: 10 ns
1.16.3.2. 10X: 2.3 ns
1.16.4. Input Capacitance
1.16.4.1. 1X: 50 pF ± 20 pF
1.16.4.2. 10X: 10 pF ± 5 pF
1.16.5. Max Rated Input Voltage
1.16.5.1. 1X: 150 V RMSCAT II
1.16.5.2. 10X: 300 V RMSCAT II
1.16.6. Compensation Range
1.16.6.1. 10 pF to 25 pF
1.16.7. Probe tip diameter of 4.6mm

1.17. Rigol Digital Scopes - Rigol MSO5074 - Four Channel, 70 MHz Digital / Mixed Signal Oscilloscope – Rigol - MSO5074

1.17.1. Four channels
1.17.2. 70 MHz digital / mixed signal oscilloscope
1.17.3. Up to 8 GSa/s
1.17.4. Minimum 100 Mpts memory
1.17.5. High waveform capture rate (over 500,000 wfm/s)
1.17.6. Multiple interfaces available: USB, LAN(LXI), HDMI, TRIG OUT, and USB-GPIB
1.17.7. Remote wireless control software to migrate instrument control and waveform analysis to PC
1.17.8. Auto measurement of 41 waveform parameters
1.17.9. Full-memory hardware measurement function
1.17.10. Up to 450,000 frames of hardware real-time and ceaseless waveforms recording and playback functions
1.17.11. Integration of independent items to a single form

1.18. Solder Fan/Extractor - Weller WSA350 Benchtop Smoke Absorber – Weller - WSA350

1.18.1. Removes flux fumes from soldering workbench
1.18.2. Large built-in F3 fine dust pre-filter
1.18.3. Smoke absorber to be adjusted to varying angles
1.18.4. ESD Safe

1.19. Soldering Iron Tips - Hakko T39 TIP KIT

1.19.1. Compatible with T39-B05, T39-D12 and T39-D24
1.19.1.1. T39-B05 – Conical, R0.5 x 10mm
1.19.1.2. T39-D12 – Chisel, 1.2 x 10mm
1.19.1.3. T39-D24 – Chisel, 2.4 x 10mm

1.20. Soldering stations - Hakko FX-971

1.20.1. Compatible with standard and micro handpieces
1.20.2. 100W capacity
1.20.3. 120-850°F temperature range
1.20.4. Compatible T39 tips
1.20.5. Handpiece sensor that detects when the iron is in use or should be put to sleep
1.20.6. Built in tip stand
1.20.7. Easy to read display
1.20.8. Displays set temperature and sensor temperature simultaneously
1.20.9. 5 user programmable presets
1.20.10. USB interface enables station to be setup, controlled, and monitored from a PC
1.20.11. Includes HAKKO Control Software

1.21. Test Lead Holder - Fluke H900

1.21.1. Heavy duty construction with mounting holes
1.21.2. Durable powder coat finish in distinctive Fluke colors
1.21.3. Holder has 10 slots for wires up to 8 mm in diameter
1.21.4. Over all dimensions: 11" L x 3.5" W X 1.25" H

1.22. Prusa CORE One

1.22.1. Assembled by Manufacturer
1.22.2. Compatible with PRUSASLICER
1.22.3. Build Volume 250 x 220 x 270 mm | 9.8 x 8.6 x 10.6 in
1.22.4. Filament diameter 1.75 mm
1.22.5. Layer height 0.05-0.30 mm
1.22.6. Printer dimensions 22,5 kg, 415×444×555 mm; 16.3×17.5×21.8 in (X×Y×Z)
1.22.7. LCD screen 3.5” graphic 65k color screen
1.22.8. Touch control - Yes
1.22.9. Firmware update interface USB drive, Prusa Connect, Prusa Mobile App
1.22.10. Internal camera optional, in-chamber solution
1.22.11. MMU3 support - Yes

1.22.12. HEPA filtration optional addon
1.22.13. Advanced Filtration System: optional addon
1.22.14. Ethernet connection: Yes
1.22.15. Wi-Fi: NFC receiver, optional ESP Wi-Fi module (delivered with the printer)

1.23. Original Prusa XL Assembled 5-toolhead 3D Printer - Enclosure Bundle

1.23.1. Assembled by Manufacturer
1.23.2. Compatible with PRUSASLICER
1.23.3. Build Volume 360×360×360 mm (14.17''×14.17''×14.17'')
1.23.4. Filament diameter 1.75 mm
1.23.5. Layer height 0.05-0.30 mm
1.23.6. Printer dimensions (without spool) 27.9 kg (single-tool) / 29.3 kg (dual-head) / 33.7 kg (five-head), 700 mm (w) × 900 mm (h) × 720 mm (d) (27.5''×35.5''×28.5'') including side spoolholders and the separate top enclosure cover
1.23.7. LCD screen 3.5" graphic 65k color screen
1.23.8. Connectivity ESP Wi-Fi module
1.23.9. Print medium USB drive / LAN / internet via Prusa Connect

1.24. Buddy3D Camera for Prusa CORE One

1.24.1. The camera is only compatible with Prusa Connect.
1.24.2. Technical Parameters:
1.24.2.1. Resolution: 1920x1080
1.24.2.2. Input: 5VDC 1 A
1.24.2.3. Connectivity: Wi-Fi 2.4 GHz

2. Furniture - *The manufacturer name and code provided are for descriptive purposes only and are not intended to be restrictive. Any offeror who can demonstrate that their product meets or exceeds the specifications outlined by the manufacturer will be considered for award. The intention is to establish a minimum standard, and alternative solutions will be evaluated based on their ability to meet or exceed these requirements*:

2.1. Clear View Cabinets & 1 5S Cabinet Uline - H-3594GR

2.1.1. **Dimension:**
2.1.1.1. Inside: 47 3/4 x 22 1/2 x 73"
2.1.1.2. 4 Adjustable Shelves
2.1.1.3. Usable: 47 1/2 x 22 1/2"
2.1.1.4. Minimum Space from Highest Shelf Position to Top of Cabinet: 15"
2.1.1.5. Leveling feet
2.1.2. **Thickness:**
2.1.2.1. Body & Doors: 20 gauge
2.1.2.1.1. 2 keys included
2.1.2.2. Shelves: 24 gauge with welded corners
2.1.3. **Material:**
2.1.3.1. Powder coated

2.1.3.2. Not fireproof

2.1.4. **Weight Capacity:**

2.1.4.1. Fixed Bottom Shelf: 400 lbs

2.1.4.2. Total Unit: 2,000 lbs

2.2. Clear-View Bin Storage Cabinets – Uline - H-8483G

2.2.1. **Dimensions:**

2.2.1.1. Inside: 47 1/4 x 22 1/4 x 77 1/4" (W x D x H)

2.2.1.2. Door Opening: 45 x 72" (W x H)

2.2.2. **Shelves:**

2.2.2.1. Dimensions:

2.2.2.1.1. 47 3/8 x 18 3/4" (W x D)

2.2.3. **Capacity:**

2.2.3.1.1. 200Lbs

2.2.4. Shelves insert into louvers on back & sides of cabinet.

2.2.5. Front lip prevents items from sliding off.

2.2.6. **Color**

2.2.6.1. Dark Grey

2.2.7. **Plastic Bins (Inside)**

2.2.7.1. Color

2.2.7.1.1. Green

2.2.7.2. Dimensions

2.2.7.2.1. 1/4 x 4 5/8 x 4 1/2"

2.2.7.2.2. 3/4 x 6 7/8 x 6 3/8"

2.2.7.2.3. 13/16 x 14 15/16 x 6 5/16"

2.3. Industrial Steel Shelving – Uline - H-2886

2.3.1. **Dimensions:**

2.3.1.1. Shelf: 47 11/16 x 23 3/4" (W x D)

2.3.1.2. Outside:

2.3.1.2.1. Width: Add 1/2" to listed dimensions.

2.3.1.2.2. Depth: Add 3/16" to listed dimensions.

2.3.1.3. Sway Braces (Length):

2.3.1.3.1. Side: 34 1/4"

2.3.1.3.2. Back: 55 1/4"

2.3.2. **Thickness:**

2.3.2.1. Posts: 14 gauge

2.3.2.2. Side/Rear Braces: 11 gauge

2.3.3. **Features:**

2.3.3.1. Powder coated

2.3.4. **Capacity:**

2.3.4.1. Shelf capacity in the chart is for each shelf based on evenly distributed loads.

2.3.4.2. Figuring "Total Unit Capacity":

2.3.4.3. Number of Shelves Including Top & Bottom Subtract 2 x Shelf Capacity

2.3.4.3.1. Ex: 6 - 2= 4 x 550 lbs = 2,200 lbs

2.4. Industrial Packing Table - Uline - H-1135-MAP

2.4.1. **Dimensions:**

2.4.1.1. Adjustable Legs (Without Tabletop): 27 7/8 - 35 3/8"

2.4.1.2. Shelf Clearance: 20 1/4"

2.4.1.3. Clearance Between Legs: 54"

2.4.1.4. Holes to Bolt Table to Floor: 3/8" diameter

2.4.1.5. Width of the maple strips varies from 3/4" to 1 3/4".

2.4.2. **Leg Thickness:**

2.4.2.1. Legs:

2.4.2.1.1. Primary Material: 12 gauge

2.4.2.1.2. Upper Section: 13 gauge

2.4.3. **Material:**

2.4.3.1. Tabletop: Lacquer finish

2.4.4. **Features:**

2.4.4.1. Most durable tabletop.

2.4.4.2. Tabletop Edges:

2.4.4.2.1. Front: Rounded

2.4.4.2.2. Back/Sides: Square

2.4.5. **Capacity:**

2.4.5.1. Bottom Shelf: 250 lbs evenly distributed

2.5. Tabletop Power Strips – Uline - H-7835

2.5.1. 60” Strip length

2.5.2. 18 outlets

2.5.3. 3” outlet spacing

2.5.4. 3 prongs plug with surge protection

2.5.5. Metal

2.6. Single Sided Floor Rack Bin Organizer with Bins – Uline - H-1428G

2.6.1. **Dimensions:**

2.6.1.1. Rack:

2.6.1.1.1. Overall: 36 x 66" (W x H)

2.6.1.1.2. Depth (Including Side Supports): 13 1/2"

2.6.1.2. Plastic Bins:

2.6.1.2.1. Outside: 7 1/2 x 4 x 3" (L x W x H)

2.6.1.2.2. Inside: 6 13/16 x 3 1/2 x 2 5/8" (L x W x H)

2.6.2. **Material:**

2.6.2.1. 16-gauge steel

2.6.3. **Weight Capacity**

2.6.3.1. 500lb

2.7. Table Leg Outlet Packing Table Leg Outlet – Uline - H-6851

2.7.1. **Dimensions:**

2.7.1.1. Overall: 2 3/4 x 2 9/16 x 4 1/2" (W x D x H)

2.7.2. **Material:**

2.7.2.1. Casing: Steel

2.7.3. **Features:**

2.7.3.1. Accepts 3-prong NEMA 5-15 plugs.

2.7.3.2. Re-settable circuit breaker On/Off switch.

2.7.4. **Electrical:**

2.7.4.1. 125 V

2.7.4.2. 15 amps

2.7.4.3. 1875 W

2.7.4.4. Cord Type: SJT

2.7.4.5. Gauge/Conductor: 14/3

2.8. Mobile Heavy-Duty Packing Table – Uline - H-10530-MAP

2.8.1. **Dimensions:**

2.8.1.1. Adjustable Height (Actual- Including Casters): 36 1/4 - 46 1/4"

2.8.1.2. Bottom Shelf:

2.8.1.2.1. Overall: 45 7/8 x 22" (W x D)

2.8.1.2.2. Shelf Clearance: 22"

2.8.1.3. Clearance Between Legs:

2.8.1.3.1. Length Side: 42 13/16"

2.8.1.3.2. Width Side: 20"

2.8.1.4. Casters (Width): 1 1/4"

2.8.2. **Thickness:**

2.8.2.1. Tabletop: 1 3/4"

2.8.2.2. Frame:

2.8.2.3. Frame Support Bars: 14 gauge

2.8.2.4. Legs: 15 gauge

2.8.2.5. Bottom Shelf/Support Bars: 16 gauge

2.8.3. **Material:**

2.8.3.1. Tabletop: Lacquer finish, Maple

2.8.3.2. Casters: Polyurethane

2.8.3.3. Frame: Powder coated

2.8.3.4. Tabletop Edges:

2.8.3.4.1. Front: Rounded

2.8.3.4.2. Back/Sides: Square

2.9. Packing Table Locking Drawer – Uline - H-1550

2.9.1. **Dimensions:**

2.9.1.1. Overall: 18 x 15 x 8 1/4"

2.9.1.2. Tray Depth: 7/8"

2.9.1.3. Tray Compartments (4):

2.9.1.3.1. 2 3/8 x 2 3/8"

2.9.1.3.2. 5 x 2 3/8"

2.9.1.3.3. 6 3/8 x 2 3/8"

2.9.1.3.4. 9 x 2 3/8"

2.9.2. **Material:**

2.9.2.1. Outside: Powder coated steel

2.9.2.2. Tray: Plastic

2.9.2.3. Roller Guides: Ball bearings

2.10. Packing Tabletop Shelf (96-inch-Workbenches) – Uline - H-5506

2.10.1. **Dimensions**

2.10.1.1. 96x10”

2.10.2. **Capacity**

2.10.2.1. 200lbs per sq ft

2.11. Industrial Packing Table – Uline - H-1222-MAP

2.11.1. **Dimensions:**

2.11.1.1. Adjustable Legs: 27 7/8 - 35 3/8"

2.11.1.2. Shelf Clearance: 20 1/4"

2.11.1.3. Clearance Between Legs: 44"

2.11.1.4. Holes to Bolt Table to Floor: 3/8" diameter

2.11.1.5. Width of the maple strips varies from 3/4" to 1 3/4".

2.11.2. **Thickness:**

2.11.2.1. Legs:

2.11.2.1.1. Primary Material: 12 gauge

2.11.2.1.2. Upper Section: 13 gauge

2.11.2.2. Tabletop Edges:

2.11.2.2.1. Front: Rounded

2.11.2.2.2. Back/Sides: Square

2.11.3. **Material:**

2.11.3.1. Maple Tabletop: Lacquer finish

2.11.4. **Capacity**

2.11.4.1. Up to 500lbs

2.12. Mobile Cabinet Workbench – Uline - H-6997-MAPLE

2.12.1. **Dimensions:**

2.12.1.1. Actual Adjustable Height (Including Top & Casters): 35 1/16 - 45 3/16"

2.12.1.2. Steel Housing: 57 1/8 x 25 5/8" (W x D)

2.12.1.3. Cabinet:

2.12.1.3.1. Inside: 55 3/4 x 24 3/8 x 23 3/8" (W x D x H)

2.12.1.3.2. Door Opening (Both Doors Open): 49 1/2" W

2.12.1.4. Adjustable Shelf:

2.12.1.4.1. Overall: 55 x 23 1/2" (W x D)

2.12.1.4.2. Lip: 3/4"

2.12.1.4.3. Three height options spaced 4" apart.

2.12.1.5. Bottom Shelf (Overall): 55 1/2 x 24 1/2" (W x D)

2.12.1.6. Casters (Width): 1 1/4"

2.12.1.7. Width of the maple strips varies from 3/4" to 1 3/4".

2.12.2. **Thickness:**

2.12.2.1. Legs: 14 gauge

2.12.2.2. Frame: 15 gauge

2.12.2.3. Shelf, Body (Rear) & Door: 18 gauge

2.12.2.4. Body (Sides): 22 gauge

2.12.3. **Material:**

2.12.3.1. Maple Tabletop: Lacquer finish

2.12.3.2. Cabinet: Powder coated steel

2.12.3.3. Casters: Polyurethane

2.12.4. **Capacity**

2.12.4.1. 1,200lbs

2.13. Wire Spool Holders (Reel Caddy) – Uline - H-4887

2.13.1. Welded steel frame with durable

2.13.2. Powder-coat finish.

2.13.3. Storage tray for tools.

2.13.4. Holds up to 6" diameter spools on top 3 axles, 12" on bottom axle.

2.13.5. Rolls easily on 8 x 2 1/2" rubber wheels.

2.13.6. **Dimensions:**

2.13.6.1. Width listed in the chart includes wheels.

2.13.6.2. Rod Diameter: 5/8"

2.13.6.3. Usable Rod Width: 16"

2.13.6.4. Storage Tray (Usable): 15 1/2 x 3 3/4 x 2 7/8" (W x D x H)

2.13.7. **Capacity**

2.13.7.1. Each Rod: 75 lbs

2.14. Downtown Adjustable Height Desk – Uline - H-11106GR

2.14.1. **Dimensions:**

2.14.1.1. Overall: 47 1/4 x 26 x 28 1/2 - 48" (L x W x H)

2.14.1.2. Desktop: 47 1/4 x 23 1/2" (L x W)

2.14.1.3. Grommet Hole (Diameter): 2 3/8"

2.14.1.4. Modesty Panel: 36 5/8 x 15 3/4" (L x H)

2.14.1.5. Modesty Panel: 13/16"

2.14.2. **Features:**

2.14.2.1. Up/Down buttons

2.14.2.2. Overheat protection

2.14.2.3. Display shows height in inches and centimeters.

2.14.3. **Material:**

2.14.3.1. Desktop:

2.14.3.1.1. Core: Particle board

2.14.3.1.2. Surface: Thermally fused laminate

2.14.3.1.3. Edges: Impact resistant PVC (Polyvinyl Chloride)

2.14.3.2. Base: Powder coated steel

2.14.4. **Specifications:**

2.14.4.1. Drive System:

2.14.4.2. 110 V

2.14.4.3. 4 amps

2.14.4.4. 60 Hz

2.14.4.5. Lifting Speed: 1 1/2" per second

2.14.4.6. cTUVus Certification

2.14.4.7. Meets or exceeds ANSI/BIFMA standards.

2.14.4.8. 10' power cord

2.14.4.9. Adjust from 28 1/2 to 48" high. Powered by 2 quiet electric motors.

2.14.5. **Capacity**

2.14.5.1. 275lbs

2.15. Anti-Static Table Mat – Uline - S-21921

2.15.1. Size: 3x50’

2.15.2. Thickness: 1/16”

2.15.3. Snap fasteners and grounding cords

2.16. Mat – Uline - H-11551GR

2.16.1. 3-layer TPE construction

2.16.2. Self-healing top surface

2.16.3. Nonslip

2.16.4. Texture grid bottom to prevent sliding

2.16.5. Fold in half design

2.16.6. 1/10” thick

2.16.7. 96x34”

2.17. Workstation Mats for Workbenches - Workbench Mat - 60 x 22", Gray – Uline - H-9693GR

2.17.1. 5-layer PVC construction

2.17.2. Self-healing top surface

2.17.3. Nonslip

2.17.4. Texture grid bottom to prevent sliding

2.17.5. 1/8” thick

2.17.6. 60x22”

2.18. Mobile Heavy-Duty Packing Table - 60 x 30", Maple Top with Square Edge – Uline - H-9005-SMAP

2.18.1. DIMENSIONS:

2.18.1.1. Adjustable Height (Actual- Including Casters): 36 1/4 - 46 1/4"

2.18.1.2. Bottom Shelf:

2.18.1.2.1. Overall: 57 7/8 x 22" (W x D)

2.18.1.2.2. Shelf Clearance: 22"

2.18.2. Clearance Between Legs:

2.18.2.1. Length Side: 54 13/16"

2.18.2.2. Width Side: 20"

2.18.3. Casters (Width): 1 1/4"

2.18.4. Width of the maple strips varies from 3/4" to 1 3/4".

2.18.5. THICKNESS:

2.18.5.1. Tabletop: 1 3/4"

2.18.5.2. Frame:

2.18.5.2.1. Frame Support Bars: 14 gauge

2.18.5.2.2. Legs: 15 gauge

2.18.5.2.3. Bottom Shelf/Support Bars: 16 gauge

2.18.6. MATERIAL:

2.18.6.1. Tabletop: Lacquer finish

2.18.6.1.1. Avoid excess water, oil and strong cleaning agents. If exposed, dry immediately.

2.18.6.2. Casters: Polyurethane

3. Tools - *The manufacturer name and code provided are for descriptive purposes only and are not intended to be restrictive. Any offeror who can demonstrate that their product meets or exceeds the specifications outlined by the manufacturer will be considered for award. The intention is to establish a minimum standard, and alternative solutions will be evaluated based on their ability to meet or exceed these requirements*:

3.1. 1 Inch Nylon Spring Clamp – Tekton - 3914

3.2. 1/2 Inch Drive Hex, Torx, TR Triple Square, Phillips, Slotted Bit Socket Set with Case (44-Piece) – Tekton - SHB92304

3.3. 1/2 Inch Drive Impact All Accessories Set (6-Piece) – Tekton - SIA92003

3.4. 1/2 Inch Drive x 7.5 Inch Wobble L-Handle – Tekton - SLH20108

3.5. 1/4 Inch Bit Driver and Bit Set with Case (37-Piece) – Tekton - DBH93101

3.6. 1/4 Inch Drive x 4-1/2 Inch Bit Ratchet – Tekton - SRH71004

3.7. 1/4, 3/8, 1/2 Inch Drive 12-Point Socket Set with Rails and Trays (214-Piece) – Tekton - SHD99203

3.8. 1/4, 3/8, 1/2 Inch Drive Flex Head Quick-Release Ratchet Set, 3-Piece (6, 8, 10-1/2 in.) – Tekton - SRH92103

3.9. 1/4, 3/8, 1/2 Inch Drive Micrometer Torque Wrench Set (3-Piece) – Tekton - TRQ99901

3.10. 16 oz. Jacketed Fiberglass Magnetic Head Claw Hammer – Tekton - 30323

3.11. 21-Drawer 40/60 Split Bank Tool Cabinet System with Stainless Steel Top, Red (60 W x 30 D x 63 H in.) – Tekton - OCC64102

3.12. 24 Inch Ratchet Bar Clamp / 30 Inch Spreader – Tekton - 39184

3.13. 26 oz. Ball Peen Dead Blow Hammer – Tekton - HDB50026

3.14. 3 Inch Malleable Iron C-Clamp – Tekton - 4012

3.15. 3/8 Inch Drive 12-Point Socket and Ratchet Set with Case, 73-Piece (1/4-1 in., 6-24 mm) – Tekton - SKT15312

3.16. 3/8 Inch Drive Crowfoot Wrench Set with Racks, 30-Piece (5/16-1 in., 8-24 mm) – Tekton - WCF95301

3.17. 3/8 Inch Drive Micrometer Torque Wrench (10-80 ft-lb) – Tekton - 24330

3.18. 3/8 Inch Drive Spark Plug Socket Set, 3-Piece (5/8, 3/4, 13/16 in.) – Tekton - SHD91003

3.19. 3/8 Inch Drive Torx/TR Torx Bit & External Star Socket Set with Case, 36-Piece (T10-T60, TR10-TR60, E4-E20) – Tekton - SKT15402

3.20. 3/8 Inch Drive x 6 Inch Wobble L-Handle – Tekton - SLH10106

3.21. 3/8, 1/2 Inch Drive 72-Tooth Split Beam Torque Wrench Set with Cases, 2-Piece (20-100 ft-lb, 40-250 ft-lb) – Tekton - TRQ99902

3.22. 3/8, 1/2 Inch Drive Comfort Grip Breaker Bar Set (2-Piece) – Tekton - SBH99201

3.23. 4 Inch Adjustable Wrench - 23001

3.24. 45-Degree Offset Box End Wrench Set with Modular Organizers, 19-Piece (1/4 - 1-1/4 in., 6-32 mm) – Tekton - WBE95302

3.25. 6 Inch Malleable Iron C-Clamp – Tekton - 4027

3.26. 6-Inch-Long Nose Locking Pliers – Tekton - PLK30006

3.27. 7 Inch Internal and External Retaining Ring Pliers Set, 2-Piece (0.070 in. Tips) – Tekton - PRR90003

3.28. 7 Inch Internal and External Retaining Ring Pliers Set, 4-Piece (0.070 in. Tips) – Tekton - PRR90005

3.29. 7 Inch Wire Stripper – Tekton - 3797

3.30. 7-Drawer Tool Cabinet, Red (36 W x 27 D x 41.5 H in.) – Tekton - OCL33200

3.31. 7-Inch-Deep Bite Round Jaw Locking Pliers – Tekton - PLK20007

3.32. Adjustable Wrench Set, 2-Piece (6, 9 in.) - 1-1/2 in. Jaw Capacity – Tekton - WSA90000

3.33. Angle Head Open End Wrench Set with Holder, 11-Piece (3/8-1 in.) – Tekton - WAE91204

3.34. Angled End Handled Pry Bar Set with Wall Hanger, 5-Piece (12, 17, 25, 36, 45 in.) – Tekton - LSQ96504

3.35. Ball End Hex and Star L-Key Set with Holders, 41-Piece (0.050-3/8 in., 1.3-10 mm, T6-T50) – Tekton - KEY91002

3.36. Ball End Hex and Star T-Handle Key Set with Stands, 34-Piece (5/64-3/8 in., 2-10 mm, T6-T50) – Tekton - KEY92001

3.37. Conversion Table Card (10 x 7 in.) – Tekton - APG40002

3.38. Dead Blow Hammer Set, 3-Piece (13, 21, 39 oz.) - HDB93001

3.39. Demo Tools – Pliers – Tekton – “PMN54001, PCT00007, PCT10008, PGF10008, PGF30009, 37124, 37524, PMN21001, PMN01001, PMN11301, PMN64001"

3.40. Double-Faced Soft Mallet - 30812

3.41. Everybit Precision Tool Kit with Case (27-Piece) – Tekton - 2830

3.42. Everybit Tech Rescue Kit with Case (46-Piece) – Tekton - 28301

3.43. Folding Star Key Wrench Set, 8-Piece (T9-T40) – Tekton - 25192

3.44. Gripping, Cutting, and Locking Pliers Set with Rack (10-Piece) – Tekton - PLR99202

3.45. Hardwood Block Top (36 W x 27 D in.) – Tekton - OCT33400

3.46. High-Torque Black Oxide Blade Nut Driver Set, 6-Piece (1/4-3/8 in., 7-10 mm) – Tekton - DHD91301
3.47. High-Torque Black Oxide Blade Screwdriver Set, 10-Piece (#0-#3, 1/8-5/16 in.) – Tekton - DRV41239
3.48. High-Torque Screwdriver Set with Red Rails, 22-Piece (#0-#3, 1/8-5/16 in., T10-30) - DRV45501
3.49. Lidded Drawer for Storing Components Lidded Drawer (i-BOXX) with 10-Piece Organizer Bin Set – Tekton - OLB51710

3.50. Modular Wrench Organizer Label Sheet (1/4 - 1-1/2 in.) – Tekton - OTM27001
3.51. Modular Wrench Organizer Label Sheet (6-39 mm) – Tekton - OTM27002
3.52. Pointed Pick and Hook Set with Pouch (5-Piece) – Tekton - PNH90402
3.53. Punch and Chisel Set with Pouch, 20-Piece (Center, Solid, Pin, Chisel) – Tekton - PNC99101

3.54. Reversible 12-Point Ratcheting Combination Wrench Set with Modular Organizers, 34-Piece (1/4-1 in., 6-24 mm)) – Tekton - WRC94305

3.55. Pliers Set for tool Drawer 2 - mini Pliers - Tekton - "PMN01001, PMN11301, PMN54001, PMN64001"
3.56. Pliers Set for tool Drawer 3 - Pliers – Tekton - "37524, 37124. PGF10008, PCT00007, PCT10008, PGF30009"

4. Curriculum Based Items - *The manufacturer name and code provided are for descriptive purposes only and are not intended to be restrictive. Any offeror who can demonstrate that their product meets or exceeds the specifications outlined by the manufacturer will be considered for award. The intention is to establish a minimum standard, and alternative solutions will be evaluated based on their ability to meet or exceed these requirements. Additionally, products must integrate effectively with the curriculum; items that do not align with or support the instructional goals of the curriculum will not be considered.*

4.1. Columbia Electric Supply

4.1.1.**Analog Cards Voltage – Allen Bradley - 1734- IE2V**

4.1.1.1. Type: Analog Input Module
4.1.1.2. Voltage, DC: 24VDC
4.1.1.3. Current, Load: 15mA
4.1.1.4. Input type: 2 point
4.1.1.5. Mounting Type: DIN Rail
4.1.1.6. Application: In Cabinet

4.1.2. **Analog Cards Voltage – Allen Bradley – 1734-OE2V**

4.1.2.1. Opening: 2 point
4.1.2.2. Type: Analog Output Module
4.1.2.3. Voltage, DC: 24 VDC
4.1.2.4. Current, Load: 35mA
4.1.2.5. Output Type: Voltage Sourcing
4.1.2.6. Mounting Type: DIN Rail
4.1.2.7. Output: 2 point

4.1.2.8. Application: In Cabinet

4.1.3. **PLC - I|O Module; 8-Point; Input; 10 VDC (Analog) - 5069-IF8**

4.1.3.1. Attribute |5069-IF8

4.1.3.2. Per channel

4.1.3.2.1. 625 µs

4.1.3.3. Per group (channel group 0…3 or channel group 4…7)

4.1.3.3.1. 2.5 ms

4.1.3.4. Notch filter at minimum RPI (0.2 ms, 1 channel enabled)

4.1.3.4.1. 62.5 kHz

4.1.3.5. Minimum notch filter frequency at RPI of 2.5 ms

4.1.3.5.1. 10 kHz

4.1.3.6. Step response time to 63% of value (Notch filter 10 kHz)

4.1.3.6.1. 7.5 ms

4.1.3.7. Input notch filter (Hz) selections

4.1.3.7.1. 5, 10 (50/60 Default), 15, 20, 50, 60, 100, 200, 500, 1000, 2500, 5000, 10000, 15625, 25000, 31250, 62500

4.1.3.8. Input anti-aliasing filter cutoff frequency, nom

4.1.3.8.1. 500 Hz

4.1.3.9. Input digital filter

4.1.3.9.1. First order lag,

4.1.3.9.2. 0 ms (Default)…32,767 ms (32.767 s)

4.1.3.10. HART handheld compliance

4.1.3.10.1. Add an external 250 Ω resistor into the current loop for HART transmitter compliance.

4.1.3.11. Overvoltage protection, max

4.1.3.11.1. Voltage and Current modes:

4.1.3.11.1.1. ± 30V DC

4.1.3.12. Overcurrent protection, max

4.1.3.12.1. Current mode: ±30 mA

4.1.3.13. Data value during overload condition

4.1.3.13.1. Full scale, overrange flag, Data uncertain / data bad

4.1.3.14. Open circuit detection time

4.1.3.14.1. Voltage: + full scale, < 2 s Current: 4…20 mA range, <2 s

4.1.3.15. Onboard data alarming

4.1.3.15.1. Yes

4.1.3.16. Scaling to engineering units

4.1.3.16.1. Yes

4.1.3.17. Real-time channel sampling

4.1.3.17.1. Yes

4.1.3.18. Data format

4.1.3.18.1. IEEE 32-bit floating point

4.1.4. **PLC - I|O Module; 8-Point; Output (Analog) - 5069-OF8**

4.1.4.1. Attribute | 5069-OF8

4.1.4.2. Outputs

4.1.4.2.1. 8 voltage or current

4.1.4.3. Output range, voltage

4.1.4.3.1. ± 10V

4.1.4.3.2. 0…10V

4.1.4.3.3. 0…5V

4.1.4.4. Output range, current

4.1.4.4.1. 0…20 mA

4.1.4.4.2. 4…20 mA

4.1.4.5. Resolution

4.1.4.5.1. 16 bits across ± 10.5V - 320 µV/bit

4.1.4.5.2. 16 bits across 10.5V - 160 µV/bit

4.1.4.5.3. 16 bits across 5.25V - 80 µV/bit

4.1.4.5.4. 16 bits across 21 mA - 320 nA/bit

4.1.4.6. Drive capability

4.1.4.6.1. Voltage - 1000 Ω min

4.1.4.6.2. Current - 500 Ω max

4.1.4.7. Capacitive load, max (voltage mode only)

4.1.4.7.1. 1 µF

4.1.4.8. Inductive load, max (current mode only)

4.1.4.8.1. 1 mH

4.1.4.9. Open circuit detection

4.1.4.9.1. Current mode only

4.1.4.10. Short circuit detection

4.1.4.10.1. Voltage mode only – output electronically limited to 16 mA or less

4.1.4.11. Data format

4.1.4.11.1. IEEE 32-bit floating point

4.1.4.12. Module conversion method

4.1.4.12.1. R-Ladder DAC, monotonicity with no missing codes

4.1.4.13. Conversion time per channel

4.1.4.13.1. 25 µs

4.1.4.14. Scan time Per group 0…3 (OF4/OF8) Per group 0…7 (OF8 only)

4.1.4.14.1. 1.0 ms

4.1.4.14.2. 2.0 ms

4.1.4.15. Step response time to 63% of value

4.1.4.15.1. Voltage mode – 18 µs max

4.1.4.15.2. Current mode – 1 ms max

4.1.4.15.3. Overvoltage protection, max

4.1.4.15.4. ± 32V DC

4.1.4.16. Repeatability

4.1.4.16.1. 0.05%

4.1.4.17. Calibrated accuracy at 25 °C (77 °F)

4.1.4.17.1. Voltage - 0.10% full scale

4.1.4.17.2. Current - 0.10% full scale

4.1.4.18. Accuracy drift with temperature

4.1.4.18.1. Voltage - 0.30% full scale

4.1.4.18.2. Current - 0.50% full scale

4.1.5. **PLC - I|O Module; 16-Point; Input; 12-24 VDC (Digital) - 5069-IB16**

4.1.5.1. Attribute | 5069-IB16

4.1.5.2. Inputs

4.1.5.2.1. 16 Channels (1 group of 16), sinking

4.1.5.3. Voltage category

4.1.5.3.1. 12/24V DC Sink

4.1.5.4. Voltage and current ratings

4.1.5.4.1. Input ratings 4…7.4 mA per channel @ 10…32V DC

4.1.5.4.2. MOD Power 75 mA @ 18…32V DC

4.1.5.4.3. MOD Power Passthrough, max(1) 9.55 A @ 18…32V DC

4.1.5.4.4. SA Power 200 mA @ 10…32V DC

4.1.5.4.5. SA Power Passthrough, max(2) 9.95 A @ 10…32V DC

4.1.5.5. Power dissipation, max

4.1.5.5.1. 3.9 W

4.1.5.6. Thermal dissipation, max

4.1.5.6.1. 13.3 BTU/hr

4.1.5.7. Isolation voltage

4.1.5.7.1. 250V (continuous), Basic Insulation Type

4.1.5.7.2. No isolation between SA Power and input ports

4.1.5.7.3. No isolation between individual input ports

4.1.5.8. Module keying

4.1.5.8.1. Electronic keying via programming software

4.1.5.9. Indicators

4.1.5.9.1. 1 green/red module status indicator

4.1.5.9.2. 16 yellow/red I/O status indicators

4.1.5.10. Slot width

4.1.5.10.1. 1

4.1.5.11. Dimensions (HxWxD), approx

4.1.5.11.1. 144.57 x 22 x 105.42 mm (5.69 x 0.87 x 4.15 in.)

4.1.5.12. DIN rail

4.1.5.12.1. Compatible zinc-plated chromate-passivated steel DIN rail. You can use the EN50022 - 35 x 7.5 mm (1.38 x 0.30 in.) DIN rail.

4.1.6. **PLC - I|O Module; 16-Point; Output; 12-24 VDC (Digital) - 5069-OB16**

4.1.6.1. Attribute | 5069-OB16

4.1.6.2. Outputs

4.1.6.2.1. 16 Channels (1 group of 16), sourcing

4.1.6.3. Voltage category

4.1.6.3.1. 12/24V DC source

4.1.6.4. Voltage and current ratings

4.1.6.4.1. MOD Power 75 mA @ 18…32V DC

4.1.6.4.2. MOD Power Passthrough, max(1) 9.55 A @ 18…32V DC

4.1.6.4.3. LA Power

4.1.6.4.3.1. 0.5 A per channel @ 10…32V DC

4.1.6.4.3.2. 8 A per module @ 10…32V DC

4.1.6.4.4. SA Power Passthrough, the module does not draw SA Power current., max(2)

4.1.6.4.4.1. 9.95 A @ 10…32V DC

4.1.6.5. Do not exceed 10 A MOD or SA Power (Passthrough) current draw

4.1.6.6. Power dissipation, max 3.25 W (16 channels @ 0.5 A)

4.1.6.7. Thermal dissipation, max 11.09 BTU/hr

4.1.6.8. Isolation voltage

4.1.6.8.1. 250V (continuous), Basic Insulation Type

4.1.6.8.2. No isolation between LA power and output ports

4.1.6.8.3. No isolation between individual output ports

4.1.6.9. Module keying

4.1.6.9.1. Electronic, module keying, software configurable

4.1.6.10. Indicators

4.1.6.10.1. 1 green/red module status indicator

4.1.6.10.2. 16 yellow/red I/O status indicators

4.1.6.11. Slot width

4.1.6.11.1. 1

4.1.6.12. Dimensions (HxWxD), approx

4.1.6.12.1. 144.57 x 22 x 105.42 mm (5.69 x 0.87 x 4.15 in.)

4.1.6.13. DIN rail

4.1.6.13.1. Compatible zinc-plated chromate-passivated steel DIN rail.
4.1.6.13.2. You can use the EN50022 - 35 x 7.5 mm (1.38 x 0.30 in.) DIN rail.

4.1.7.PLC - Logic Controller; 600 kB; 300 VAC/VDC - 5069-L306ERM

4.1.7.1. User memory 0.6 MB

4.1.7.2. Optional nonvolatile memory

4.1.7.2.1. 1784-SD1 (1 GB)
4.1.7.2.2. 1784-SD2 (2 GB), ships with controller
4.1.7.2.3. 1784-SDHC8 (8 GB)
4.1.7.2.4. 1784-SDHC32 (32 GB)
4.1.7.2.5. 9509-CMSDCD4 (4 GB) CodeMeter CmCard SD

4.1.7.3. Local I/O modules, max

4.1.7.3.1. 8

4.1.7.4. Number of power cycles

4.1.7.4.1. 80,000

4.1.7.5. MOD Power voltage range

4.1.7.5.1. 18...32V DC

4.1.7.6. MOD Power current, max

4.1.7.6.1. 450 mA

4.1.7.7. MOD Power inrush

4.1.7.7.1. 850 mA for 125 ms

4.1.7.8. MOD Power passthrough(2)

4.1.7.8.1. 9.55 A @ 18...32V DC

4.1.7.9. MOD Power current rating, max

4.1.7.9.1. 10 A
4.1.7.9.2. Do not exceed 10 A current draw at the MOD Power RTB.

4.1.7.10. SA Power voltage ranges(3)

4.1.7.10.1. 0...32V DC
4.1.7.10.2. 0...240V AC, 47...63 Hz
4.1.7.10.3. EX, 125V AC max

4.1.7.11. SA Power current, max(3)

4.1.7.11.1. 10 mA (DC power)
4.1.7.11.2. 25 mA (AC power)

4.1.7.12. SA Power passthrough(3), (4)

4.1.7.12.1. 9.95 A @ 0...32V DC
4.1.7.12.2. 9.975 A @ 0...240V AC, 47...63 Hz
4.1.7.12.3. EX, 125V AC max

4.1.7.13. SA Power current rating, max (3)

4.1.7.13.1. 10 A (AC or DC power)
4.1.7.13.2. Do not exceed 10 A current draw at the SA Power RTB.

4.1.7.14. Power dissipation, max

4.1.7.14.1. 8.5 W

4.1.7.15. Thermal dissipation, max

4.1.7.15.1. 29 BTU/hr

4.1.7.16. Isolation voltage

4.1.7.16.1. 300V (continuous), Basic Insulation Type, SA, and MOD Power to Backplane
4.1.7.16.2. 300V (continuous), Basic Insulation Type, SA to MOD Power
4.1.7.16.3. 300V (continuous), Basic Insulation Type, Ethernet to Backplane
4.1.7.16.4. 300V (continuous), Double Insulation Type, Ethernet to MOD Power
4.1.7.16.5. 300V (continuous), Double Insulation Type, Ethernet to SA Power
4.1.7.16.6. 50V (continuous), Functional Insulation Type, Ethernet to USB
4.1.7.16.7. 300V (continuous), Basic Insulation Type, USB to Backplane
4.1.7.16.8. 300V (continuous), Double Insulation Type, USB to MOD Power
4.1.7.16.9. 300V (continuous), Double Insulation Type, USB to SA Power
4.1.7.16.10. No isolation between Ethernet ports
4.1.7.16.11. Type tested at 1500V AC for 60 s

4.1.7.17. Weight, approx

4.1.7.17.1. 0.768 kg (1.693 lb)

4.1.7.18. Dimensions (HxWxD), approx

4.1.7.18.1. 143.97 x 98.10 x 136.81 mm (5.67 x 3.86 x 5.39 in.)

4.1.7.19. Location

4.1.7.19.1. DIN rail mount (horizontal mount only)

4.1.7.20. DIN rail

4.1.7.20.1. Compatible zinc-plated, chromate steel DIN rail.
4.1.7.20.2. EN50022 - 35 x 7.5 mm (1.38 x 0.30 in.)

4.1.7.21. Removable terminal block

4.1.7.21.1. RTBs are available in separately ordered 5069 RTB kits. The MOD power connection uses a 4-point RTB, and the SA power connection uses a 6-point RTB. The following kits are available: • Kit catalog number 5069-RTB64-SCREW contains RTB catalog numbers 5069-RTB6-SCREW and 5069-RTB4-SCREW. • Kit catalog number 5069-RTB64-SPRING contains RTB catalog numbers 5069-RTB6-SPRING and 5069-RTB4-SPRING.

4.1.7.22. Terminal block torque

4.1.7.22.1. 5069-RTB4-SCREW & 5069-RTB6-SCREW: 0.4 N•m (3.5 lb•in)
4.1.7.22.2. 5069-RTB4-SPRING & 5069-RTB6-SPRING: Torque does not apply

4.1.7.23. Wire size

4.1.7.23.1. 5069-RTB4-SCREW, 5069-RTB6-SCREW connections: 0.5...1.5 mm2 (22...16 AWG) solid or stranded copper wire that is rated at 105 °C (221 °F), or greater, 3.5mm (0.14 in.) max diameter including insulation, single wire connection only
4.1.7.23.2. 5069-RTB4-SPRING, 5069-RTB6-SPRING connections: 0.5...1.5 mm 2 (22...16 AWG) solid or stranded copper wire that is rated at 105 °C (221 °F), or greater, 2.9mm (0.11 in.) max diameter including insulation, single wire connection only

4.1.7.23.3. Ethernet connections: Ethernet Cabling and Installation according to IEC 61918 and IEC 61784-5-2

4.1.7.24. Insulation stripping length

4.1.7.24.1. 5069-RTB4-SCREW, 5069-RTB6-SCREW connections: 12 mm (0.47 in.)

4.1.7.24.2. 5069-RTB4-SPRING, 5069-RTB6-SPRING connections: 10 mm (0.39 in.)

4.1.7.25. Wire category (5)

4.1.7.25.1. 3 - on USB port

4.1.7.25.2. 1 - on power ports

4.1.7.25.3. 2 - on Ethernet ports

4.1.7.26. Enclosure None

4.1.7.26.1. (open-style)

4.1.7.27. North American Temperature Code

4.1.7.27.1. T4

4.1.7.28. UKEX/ATEX Temperature Code

4.1.7.28.1. T4

4.1.7.29. IECEx temperature code

4.1.7.29.1. T4

4.1.8. **High Performance -Contrast Sensor - OI-E1480**

4.1.8.1. Parameter | Value

4.1.8.2. Resolution | 640x480 pixels

4.1.8.3. Response Time | ~50 ms

4.1.8.4. Operating Range | 0.5 – 6 m (~1.5 to 20 ft) (typical)

4.1.8.5. Measurement Precision | ~1 cm (typical, varies with return signal level)

4.1.8.6. Field of View | 43°x33° (H x V, measured in center)

4.1.8.7. Illumination | 7x LEDs @ 850 nm, Built-in

4.1.8.8. Output Data | Height, Presence or Absence

4.1.8.9. Interface | EtherNet/IP

4.1.8.10. Power | 12V DC / 20 W (typical), 60 W (peak)

4.1.8.11. Virtual Sensing Zones | Up to 64 virtual sensing zones per template

4.1.8.12. Number of Templates | Up to 255 different templates

4.1.9. **Normal Duty - Diffuse Reflective Sensor; PNP|NPN; 3.5 m; 10-30 VDC - 42EA-P2MEA1-D4**

4.1.9.1. Attribute | Value

4.1.9.2. Certifications

4.1.9.2.1. CE and cULus

4.1.9.3. EMC Directive

4.1.9.3.1. EN 60947-5-2

4.1.9.4. Standards

4.1.9.4.1. UL 60947-5-2

4.1.9.5. Ambient light immunity

4.1.9.5.1. EN 60697-5-2:2007+A:2012
4.1.9.6. Functional Safety ParametersDiffuse
4.1.9.6.1. MTBF
4.1.9.6.1.1. 514 years
4.1.9.6.2. MTTFd
4.1.9.6.2.1. 1028.6 years
4.1.9.7. Background Suppression
4.1.9.7.1. MTBF
4.1.9.7.1.1. 510 years
4.1.9.7.2. MTTFd
4.1.9.7.2.1. 1021 years
4.1.9.8. Polarized Retroreflective
4.1.9.8.1. MTBF
4.1.9.8.1.1. 540.6 years
4.1.9.8.2. MTTFd
4.1.9.8.2.1. 1081.2 years
4.1.9.9. Transmitted Beam Emitter
4.1.9.9.1. MTBF
4.1.9.9.1.1. 844.6 years
4.1.9.9.2. MTTFd
4.1.9.9.2.1. 1689.2 years
4.1.9.10. Transmitted Beam Receiver
4.1.9.10.1. MTBF
4.1.9.10.1.1. 844.6 years
4.1.9.10.2. MTTFd
4.1.9.10.2.1. 1689.2 years
4.1.9.11. User Interface
4.1.9.11.1. Status indicators
4.1.9.11.1.1. Green and orange
4.1.9.11.2. Adjustments
4.1.9.11.2.1. Adjustable knob (specific models)
4.1.9.12. Optical
4.1.9.12.1. LED
4.1.9.12.1.1. Red and infrared (specific models)
4.1.9.13. Electrical
4.1.9.13.1. Operating voltage
4.1.9.13.1.1. 10…30V DC
4.1.9.13.2. Current consumption
4.1.9.13.2.1. Less than 25 mA
4.1.9.13.3. Sensor protection

4.1.9.13.3.1. Reverse polarity and short circuit

4.1.9.14. Output

4.1.9.14.1. Output types

4.1.9.14.1.1. Two push-pull outputs (PNP and NPN), light operate, and dark operate

4.1.9.15. Response Time

4.1.9.15.1. Diffuse, background suppression, and polarized retroreflective

4.1.9.15.1.1. 1 ms max

4.1.9.15.2. Transmitted beam

4.1.9.15.2.1. 3 ms max

4.1.9.15.3. Load current

4.1.9.15.3.1. 100 mA max, resistive load

4.1.9.16. Mechanical

4.1.9.16.1. Housing material

4.1.9.16.1.1. ABS

4.1.9.16.2. Lens material

4.1.9.16.2.1. Acrylic

4.1.9.17. Environmental

4.1.9.17.1. Enclosure rating

4.1.9.17.1.1. IP67

4.1.9.17.2. Operating temperature

4.1.9.17.2.1. -20…+55 °C (-4…+151 °F)

4.1.10. **PLC - Connection Cable; Teal Robotic TPE; Straight Male; RJ45; 32 V - 1585D-M4TBJM-2**

4.1.10.1. Attributes | Bulletin 1585

4.1.10.2. Certifications | UL Listed and CEC

4.1.10.3. Cable type | Unshielded 2- and 4-pair, Cat 5e

4.1.10.4. Conductor material| Tinned copper stranded

4.1.10.5. Bend radius | 10 million cycles at 20 x diameter (TPE cable)

4.1.10.6. Data rate | Up to 1 GB/s

4.1.10.7. Operating temperature | -40…+75 °C (-40…+167 °F)

4.1.10.8. Voltage | 300V

4.1.10.9. **Features**

4.1.10.9.1. 4- and 8-conductor styles

4.1.10.9.2. Unshielded cable types, Cat 5e

4.1.10.9.3. 24 AWG conductors

4.1.10.9.4. Twisted pairs maintain signal balance through cable to provide high noise immunity and return loss

4.1.10.9.5. Designed to ODVA EtherNet/IP specifications and ISO IEC 24702

4.1.10.9.6. Suitable for high noise environments M3I3C3E3

4.1.10.10. **PLC - I|O Module; 8-Point; I/O Link Master Module; 24 VDC - 5032-8IOLM12P5DR**

4.1.10.10.1. Opening 8-Point

4.1.10.10.2. Type I/O Link Master Module

4.1.10.10.3. Voltage, DC24 VDC
4.1.10.10.4. Height 2.6 In.
4.1.10.10.5. Width 4.3 In.
4.1.10.10.6. Available Downloads
4.1.10.10.6.1. EDS files for Distributed I/O Family (multi)
4.1.10.10.6.2. EDS files for 5032-8IOLM12P5DR (multi)
4.1.10.10.6.3. AOP - Add On Profiles for 5032-8IOL v2.01.22
4.1.10.10.6.4. Firmware for 5032-8IOL v2.011
4.1.10.10.7. Certifications:
4.1.10.10.7.1. CE
4.1.10.10.7.2. Korean KC
4.1.10.10.7.3. UL Listed
4.1.10.10.7.4. Australian RCM

4.1.11. **Point I/O Terminal Base – Allen Bradley - 1734-TBS**
4.1.11.1. Type: Terminal Base
4.1.11.2. Current, Rating: 10 A
4.1.11.3. Voltage, Operating: 24 VDC
4.1.11.4. Voltage, Rating: 120/240 VAC
4.1.11.5. Current, Operating: 10 A
4.1.11.6. Mounting Type: DIN Rail
4.1.11.7. Number of Channels: 8 Channel
4.1.11.8. For Use With: 1734-IT2
4.1.11.9. Application: In-Cabinet
4.1.11.10. Temperature, Rating: -20 to 55 (-4 to 131) °C (°F)
4.1.11.11. Approvals: UL

4.1.12. **Analog Encoder Cards – Allen Bradley - 1734-IK**
4.1.12.1. Voltage, Rating: 24 VDC
4.1.12.2. Current, Rating: 6.1 mA
4.1.12.3. For Use With: In-Cabinet
4.1.12.4. Mounting Type: DIN-Rail
4.1.12.5. Color: Gray
4.1.12.6. Style: Point I/O
4.1.12.7. Application: In-Cabinet
4.1.12.8. Input Type: 1 Point
4.1.12.9. Type: Incremental Encoder Input Module
4.1.12.10. Power, Supply: 24 VDC
4.1.12.11. Voltage, Isolation: 50V. Type tested @ 1100V DC for 60 s, field-side to system
4.1.12.12. Approvals: UL

4.1.13. **Micro 800 PLCs – Allen Bradley – AD 2080-L20-20QBB**
4.1.13.1. Compatible with Connected Components Workbench Software

4.1.13.2. Inputs – 24Vdc
4.1.13.3. Outputs 7 24Vdc Sourcing
4.1.13.4. Analog Output – 0…10 Vdc_1 Port
4.1.13.5. Analog In 0…10Vdc_4 Ports
4.1.13.6. PWM Support Required
4.1.13.7. Optional power supply slot
4.1.13.8. 40-pin high-speed plug-in connector slot
4.1.13.9. RJ45 Ethernet connector port
4.1.13.10. RS-232/RS-485 non-isolated combo Serial ports
4.1.13.11. Removable/fixed terminal blocks

4.1.14. **Pressure Switch – Allen Bradley - 836P-D2NFGB20PA-D4**
4.1.14.1. Diameter: 38 mm
4.1.14.2. Type: Standard
4.1.14.3. Display Type: Display/Push-button
4.1.14.4. Connection Type: 1/4 NPT Female
4.1.14.5. Output Type: 1xPNP x 1 Analog(4-20 mA) IO-Link
4.1.14.6. Pressure Range: 200 (13.78) psi (bar)
4.1.14.7. Sensor Model Type: Standard
4.1.14.8. Process Connection: 1/4 NPT Female
4.1.14.9. Measurement Type: Gauge
4.1.14.10. Pressure, Minimum: 0 psi
4.1.14.11. Pressure, Maximum: 200 psi
4.1.14.12. Approvals: cULus, CE
4.1.14.13. Serie: s836P Series

4.1.15. **Proximity - Inductive Sensor; 871TM Series; 30 mm; 20-250 VDC; 20-250 VAC - 871TM-BH15N30-H2**
4.1.15.1. Attribute | 18 mm | 30 mm
4.1.15.2. Load Current | ≤180 mA | ≤300 mA
4.1.15.3. Inrush Current (one cycle) ≤1 A | ≤3 A |
4.1.15.4. Leakage Current
4.1.15.4.1. ≤1.7 mA
4.1.15.5. Operating Voltage
4.1.15.5.1. 24…250V AC
4.1.15.6. Voltage Drop
4.1.15.6.1. ≤11V
4.1.15.7. Hysteresis
4.1.15.7.1. ≤20% typical
4.1.15.8. Protection Type
4.1.15.8.1. Transient noise
4.1.15.9. Certifications
4.1.15.9.1. CE Marked for all applicable directives
4.1.15.10. Enclosure Type Rating
4.1.15.10.1. NEMA 1, 2, 3, 4, 4X, 12, 13; IP67 (IEC529)

4.1.15.11. Housing Material

4.1.15.11.1. Plastic barrel

4.1.15.12. Connection Type

4.1.15.12.1. Cable: 2 m (6.5 ft) length, 2-conductor PVC

4.1.15.13. Status Indicator

4.1.15.13.1. Red: Output energized

4.1.15.14. Operating Temperature

4.1.15.14.1. -25…+55 °C (-13…+131 °F)

4.1.15.15. Shock

4.1.15.15.1. 30 g (1.06 oz), 11 ms

4.1.15.16. Vibration

4.1.15.16.1. 55 Hz, 1 mm (0.039 in.) amplitude, 3 planes

4.1.16. **RFID Acc; RFID Tag; 0.8 In.; 13.56 MHz; Metal - 56RF-TG-20-2KB**

4.1.16.1. Compatible with - 56RF-TR-4040

4.1.16.2. Attribute | 56RF-IN-IPS12, 56RF-IN-IPD22, and 56RF-IN-IPD22A

4.1.16.3. Voltage, auxiliary power(1)

4.1.16.3.1. 24V DC (-20…+10%)

4.1.16.4. Auxiliary current per module, max(2)

4.1.16.4.1. 4 A

4.1.16.5. Output current per RFID transceiver port, max

4.1.16.5.1. 100 mA @ 24V DC

4.1.16.6. Current for output device power per I/O port, max

4.1.16.6.1. 0.5 A @ 30V

4.1.16.7. Current for input device power per I/O port, max

4.1.16.7.1. 5 mA @ 30V

4.1.16.8. Communication rate

4.1.16.8.1. EtherNet/IP

4.1.16.8.2. 10/100 Mbps

4.1.16.8.3. Full or half-duplex

4.1.16.8.4. 100 meter per segment

4.1.16.9. Status indicators

4.1.16.9.1. Module Status - red/green

4.1.16.9.2. Network Status - red/green

4.1.16.9.3. Link Status - green/yellow

4.1.16.9.4. Auxiliary Power - green

4.1.16.9.5. I/O Status Indicator - yellow

4.1.16.10. Dimensions (H x W x D), approx

4.1.16.10.1. 179 x 37 x 43.25 mm (7.05 x 1.46 x 1.7 in.)

4.1.16.11. Weight, approx

4.1.16.11.1. 0.2 kg (0.45 lb)

4.1.16.12. Enclosure type rating

4.1.16.12.1. IP67 and IP69K

4.1.16.13. Wiring category(3)

4.1.16.13.1. 1 - on signal ports

4.1.16.13.2. 1 - on power ports

4.1.16.13.3. 1 - on communication ports

4.1.17. **RFID Acc; RFID Transceiver; 13.56 MHz; Metal - 56RF-TR-4040**

4.1.17.1. Attribute | 56RF-IN-IPS12, 56RF-IN-IPD22, and 56RF-IN-IPD22A

4.1.17.2. Voltage, auxiliary power(1)

4.1.17.2.1. 24V DC (-20…+10%)

4.1.17.3. Auxiliary current per module, max(2)

4.1.17.3.1. 4 A

4.1.17.4. Output current per RFID transceiver port, max

4.1.17.4.1. 100 mA @ 24V DC

4.1.17.5. Current for output device power per I/O port, max

4.1.17.5.1. 0.5 A @ 30V

4.1.17.6. Current for input device power per I/O port, max

4.1.17.6.1. 5 mA @ 30V

4.1.17.7. Communication rate

4.1.17.7.1. EtherNet/IP

4.1.17.7.2. 10/100 Mbps

4.1.17.7.3. Full or half-duplex

4.1.17.7.4. 100 meter per segment

4.1.17.8. Status indicators

4.1.17.8.1. Module Status - red/green

4.1.17.8.2. Network Status - red/green

4.1.17.8.3. Link Status - green/yellow

4.1.17.8.4. Auxiliary Power - green

4.1.17.8.5. I/O Status Indicator - yellow

4.1.17.9. Dimensions (H x W x D), approx

4.1.17.9.1. 179 x 37 x 43.25 mm (7.05 x 1.46 x 1.7 in.)

4.1.17.10. Weight, approx

4.1.17.10.1. 0.2 kg (0.45 lb)

4.1.17.11. Enclosure type rating

4.1.17.11.1. IP67 and IP69K

4.1.17.12. Wiring category(3)

4.1.17.12.1. 1 - on signal ports

4.1.17.12.2. 1 - on power ports

4.1.17.12.3. 1 - on communication ports

4.1.18. **Robotics Accessory; Auto Focus Code Reader - 48CR-CC77RAF-E8**

4.1.18.1. Attribute - Standard | Advanced

4.1.18.2. Certifications

4.1.18.2.1. FCC and CE Marked

4.1.18.2.2. RoHS compliant

4.1.18.3. Decoder

4.1.18.3.1. Plus (high-contrast 1D/2D)

4.1.18.3.2. X-mode (poor or damaged 1D/2D = DPM)

4.1.18.4. Speed

4.1.18.4.1. High speed (up to 60 fps) | High speed (up to 42 fps)

4.1.18.5. Sensor (CMOS)

4.1.18.5.1. WVGA (0.34 MP, 752 x 480) | SXGA (1.2 MP, 1280 x 980)

4.1.18.6. Shutter

4.1.18.6.1. Global

4.1.18.7. Frames per second (FPS)

4.1.18.7.1. WVGA (60 FPS) | SXGA (42 FPS)

4.1.18.8. Exposure

4.1.18.8.1. 50…100,000 µs (default 2500 µs)

4.1.18.9. Focal length

4.1.18.9.1. Standard: Fixed focus:

4.1.18.9.2. 102 mm (4.02 in.)

4.1.18.9.3. 133 mm (5.24 in.)

4.1.18.9.4. 190 mm (7.48 in.)

4.1.18.9.5. 400 mm (15.75 in.)

4.1.18.9.5.1. Advanced:

4.1.18.9.5.1.1. Liquid lens auto focus

4.1.18.9.5.1.2. 102 mm (4.02 in.)

4.1.18.9.5.1.3. 190 mm (7.48 in.)

4.1.18.9.5.1.4. 400 mm (15.75 in.)

4.1.18.10. Connectivity

4.1.18.10.1. M12 8-pin power, M12 4-pin Ethernet

4.1.18.11. Illumination

4.1.18.11.1. 16 red inner light-emitting diode (LEDs)

4.1.18.12. Light source, type

4.1.18.12.1. High output LED

4.1.18.13. Light source, wave length

4.1.18.13.1. 625 nm (inner red) nominal, 617 nm (outer red) nominal

4.1.18.14. Light source, operating life

4.1.18.14.1. 50,000 hr @ 25 °C (77 °F)

4.1.18.15. Digital I/O

4.1.18.15.1. 2 opto-isolator inputs, 2 opto-isolator outputs

4.1.18.16. Electrical

4.1.18.16.1. 4.75…30V DC, 200 mV p-p max ripple, 150 mA at 24V DC (typical)

4.1.18.17. Operating temperature

4.1.18.17.1. 0…40 °C (32…104 °F)

4.1.18.18. Storage temperature

4.1.18.18.1. -50…+75 °C (-58…+167 °F)

4.1.18.19. Humidity

4.1.18.19.1. 5…95% (noncondensing)

4.1.18.20. Dimensions

4.1.18.20.1. 25 x 45 x 45 mm (1 x 1.75 x 1.75 in.)

4.1.18.21. Weight

4.1.18.21.1. 68 g (2.4 oz)

4.1.18.22. Enclosure

4.1.18.22.1. IP65/67, aluminum

4.1.18.23. Indicators

4.1.18.23.1. Target pattern, good read (green flash), performance status indicators

4.1.18.24. Studio 5000 – AOP:

4.1.18.24.1. Yes

4.1.19. **Sensor - Cordset; 4-Pin; Male; 2 m; Yellow - 889D-M4AC-2**

4.1.19.1. Type 4-Pin

4.1.19.2. Gender Male

4.1.19.3. Length 2 m

4.1.19.4. Color Yellow

4.1.19.5. Style Straight

4.1.19.6. Current, Rating 4 A

4.1.19.7. Material PVC

4.1.19.8. IP|NEMA Rating IP69K|NEMA 6P

4.1.19.9. Cable Type PVC Cable, Yellow, Unshielded

4.1.19.10. Wire Size 22 AWG

4.1.19.11. Approvalsc UL, KC, UL

4.1.20. **Cordset: Mini/Mini Plus, Male, R-Ang (Ext.Threads), 5-Pin, PVC Cable, Yellow, Unshielded, IEC Color Coded, No Connector, 6 feet (1.83 meters), 16AWG - 889N-E5AF-6F**

4.1.20.1. Type : 5-Pin

4.1.20.2. Length 6’

4.1.20.3. Color Yellow

4.1.20.4. Cable Type PVC Cable, Yellow, Unshielded

4.1.20.5. Wire Size 16 AWG

4.1.21. **Sensor Acc -Mounting Bracket - OI-TMOUNT**

4.1.21.1. Compatible with OI-E1480

4.1.22. **Shaft Encoder; Multi-turn (4096 turns); 262,144 (18 bit) steps per revolution - 842E-CM-MIP4BA**

4.1.22.1. Certifications

4.1.22.1.1. CE Marked for all applicable directives NRTL mark (c-UL-us and TÜV) for UL 508 CAN/CSA C22.2.14-10

4.1.22.2. Electrical

4.1.22.2.1. Bus connection

4.1.22.2.1.1. EtherNet/IP IEC 61784-1
4.1.22.2.2. CIP sync
4.1.22.2.2.1. IEEE 1588 (IEC 61588, precision clock synchronization)
4.1.22.2.3. Transmission rate
4.1.22.2.3.1. 10/100 MBps
4.1.22.2.4. Transmission medium
4.1.22.2.4.1. Cat-5e cable
4.1.22.2.5. Code type
4.1.22.2.5.1. Binary
4.1.22.2.6. Operating voltage range
4.1.22.2.6.1. 10…30V
4.1.22.2.7. Power consumption
4.1.22.2.7.1. 3.0 W
4.1.22.2.8. Resolution
4.1.22.2.8.1. 262,144 (18 bit)
4.1.22.2.9. No. of revolutions, max
4.1.22.2.9.1. 4096 (12 bit)
4.1.22.2.10. Error limits
4.1.22.2.10.1. ±0.03°
4.1.22.2.11. Repeatability
4.1.22.2.11.1. ±0.002°
4.1.22.2.12. Operating current, max., no load; 10…30V supply
4.1.22.2.12.1. ≤200 mA
4.1.22.3. Mechanical
4.1.22.4. Moment of inertia
4.1.22.4.1. ≤6.2 gcm2 (solid shaft) of the rotor
4.1.22.4.2. ≤35 gcm2 (blind hollow shaft) of the rotor
4.1.22.5. Operating speed
4.1.22.5.1. 9000 RPM (solid shaft), max
4.1.22.5.2. 6000 RPM (blind hollow shaft), max
4.1.22.6. Shaft loading
4.1.22.6.1. Radial: 80 N max (solid shaft)
4.1.22.6.2. Axial: 40 N max (solid shaft)
4.1.22.7. Permissible shaft movement
4.1.22.7.1. Radial (static/dynamic): ± 0.3 / ± 0.05 mm [of drive element (blind hollow shaft)]
4.1.22.7.2. Axial (static/dynamic): ± 0.5 / ± 0.1 mm [of drive element (blind hollow shaft)]
4.1.22.8. Bearing lifetime
4.1.22.8.1. 3 x 109 revolutions
4.1.22.9. Angular acceleration
4.1.22.9.1. 5 x 105 rad/s2, max
4.1.22.10. Operating torque
4.1.22.10.1. 0.3 N•cm (solid shaft) @ 20 °C (68 °F)
4.1.22.10.2. 0.6 N•cm (blind hollow shaft) @ 20 °C (68 °F)

4.1.22.11. Starting torque
4.1.22.11.1. 0.5 N cm (solid shaft) at 20 °C (68 °F)
4.1.22.11.2. 0.8 N cm (blind hollow shaft) at 20 °C (68 °F)
4.1.22.12. Environmental
4.1.22.12.1. Housing material
4.1.22.12.1.1. Aluminum
4.1.22.12.2. Shaft material
4.1.22.12.2.1. Stainless steel
4.1.22.13. Operating temperature
4.1.22.13.1. -30… +85 °C (-22… +185 °F)
4.1.22.14. Storage temperature
4.1.22.14.1. 1 -40… +100 °C (-40… +212 °F)
4.1.22.15. Relative humidity 2
4.1.22.15.1. 90%
4.1.22.16. Shock 3
4.1.22.16.1. 100 g/6 ms
4.1.22.17. Vibration 4
4.1.22.17.1. 20 g/10…2000 Hz
4.1.22.18. Enclosure rating shaft
4.1.22.18.1. IP65
4.1.22.19. Enclosure rating housing 5
4.1.22.19.1. IP67
4.1.22.20. Weight
4.1.22.20.1. 0.2 kg (0.44 lb)
4.1.22.21. Standards
4.1.22.21.1. EN 61000-6-2 and EN 61000-6-3 EMC

4.1.23. **PLC - Ethernet Switch; Stratix 2500, Lightly Managed Switch; 8 Port - 1783-LMS8**
4.1.23.1. Type Stratix 2500, Lightly Managed Switch
4.1.23.2. Number of Ports 8 Port
4.1.23.3. Temperature, Operating-20 to 60 (-4 to 140) °C °F)
4.1.23.4. Network Media Male RJ45 to Male RJ45 Patchcord, Unshielded Twisted Pair, Teal TPE Cable, 1.9 m
4.1.23.5. Approvals UL, cULus , cETLus, CE

4.1.24. **PLC; Compact Terminal; 24 VDC - 2800C-070AS-1S**
4.1.24.1. Type: Compact Terminal
4.1.24.2. Voltage, Rating 24 VDC
4.1.24.3. Mounting Type: Panel
4.1.24.4. Monitor Size: 7 In.
4.1.24.5. Attribute | OptixPanel Compact Operator Panel
4.1.24.6. HMI software
4.1.24.6.1. FactoryTalk Optix™ runtime - S license (can be upgraded to M)

4.1.24.7. Remote assistance software
4.1.24.7.1. FactoryTalk Remote™ Access Basic (UBIQUITY compatible) (can be upgraded to Pro)
4.1.24.8. Operating system installed
4.1.24.8.1. Linux Yocto
4.1.24.9. LED back-light TFT LCD
4.1.24.9.1. 4.3 in. W
4.1.24.9.2. 7.0 in. W
4.1.24.10. Touchscreen
4.1.24.10.1. Resistive 4 wires (1 touch) P-CAP Multitouch (10 touches)
4.1.24.11. Front Panel
4.1.24.11.1. Material
4.1.24.11.1.1. Aluminum (AF) Aluminum and glass true flat (GL)
4.1.24.11.2. Logo
4.1.24.11.2.1. Allen-Bradley or unbranded
4.1.24.12. Protection grade
4.1.24.12.1. IP rating
4.1.24.12.1.1. IP 65 frontal - IP 20 rear
4.1.24.12.2. Type rating
4.1.24.12.2.1. UL Type 1, 4X (indoor only)
4.1.24.13. Case
4.1.24.13.1. Installation
4.1.24.13.1.1. Panel mounting
4.1.24.13.2. Material
4.1.24.13.2.1. Zinc-coated skin pass steel
4.1.24.14. Processor (soldered on-board)
4.1.24.14.1. i.MX 8M Mini
4.1.24.15. System memory RAM
4.1.24.15.1. 1 GB
4.1.24.16. Mass storage
4.1.24.16.1. 2.5 GB available for customer’s application (eMMC p-SLC)
4.1.24.17. Interfaces
4.1.24.17.1. LAN 1 x Gigabit Ethernet (RJ45)
4.1.24.17.2. USB 1 x USB 2.0 (Type-A / host)
4.1.24.17.3. Serial 1 x RS232/422/485 (DB9M) not isolated
4.1.24.18. Power supply input
4.1.24.18.1. DC input 24V 0.4 A SELV
4.1.24.18.2. Voltage Range 18…32V
4.1.24.19. Battery 1 x BR1225A Internal access
4.1.25. PLC - I/O Adapter Module; Adapter; DIN Rail - 1734-AENTR
4.1.25.1. Attribute | Value
4.1.25.2. Indicators
4.1.25.2.1. 3 red/green status indicators on CPU:

4.1.25.2.2. – Module status
4.1.25.2.3. – Network status (Ports 1 and 2 combined)
4.1.25.2.4. – POINTBus status
4.1.25.2.5. 1 green/yellow status indicator on CPU:
4.1.25.2.6. – Network activity (Ports 1 and 2 combined)
4.1.25.2.7. 2 green/yellow status indicators on base:
4.1.25.2.8. – Link 1 activity/status
4.1.25.2.9. – Link 2 activity/status
4.1.25.2.10. 2 green power supply status indicators on DC-DC Converter:
4.1.25.2.11. – System power (5V DC to POINTBus Out)
4.1.25.2.12. – Field power (24V DC from Field In)
4.1.25.3. Power consumption, max
4.1.25.3.1. 10.4 W @ 28.8V DC
4.1.25.4. Power dissipation, max
4.1.25.4.1. 6.3 W @ 28.8V DC
4.1.25.5. Input overvoltage protection
4.1.25.5.1. Reverse polarity protected
4.1.25.6. Thermal dissipation, max
4.1.25.6.1. 21.5 BTU/hr @ 28.8V DC
4.1.25.7. Isolation voltage
4.1.25.7.1. 50V (continuous), Reinforced Insulation Type, between all circuits
4.1.25.7.2. Type tested @ 500V AC for 60 s
4.1.25.8. Field power supply 10...28.8V DC @ 10A
4.1.25.9. Field power output 10...28.8V DC @ 9A
4.1.25.10. Module input 10...28V DC @ 1000 mA
4.1.25.11. POINTBus output, max 5V DC @ 0.8A
4.1.25.12. Dimensions (HxWxD), approx. 76.2 x 73.0 x 133.4 mm (3.0 x 2.87 x 5.25 in.)
4.1.25.13. Enclosure type rating None (open-style)
4.1.25.14. Terminal base screw torque 0.8 Nm (7 lb-in)
4.1.25.15. Weight, approx. 0.28 Kg (0.62 lb)
4.1.25.16. Wiring category (1) (2)
4.1.25.16.1. 1 – on power ports
4.1.25.16.2. 1 – on communications ports
4.1.25.17. Wire Size
4.1.25.17.1. Power connections:
4.1.25.17.2. 0.34... 2.1 mm2 (22...14 AWG) solid or stranded copper wire rated
4.1.25.17.3. @ 75 °C (167 °F) or greater, 1.2 mm (3/64 in.) insulation max or
4.1.25.17.4. 90 °C (194 °F) for ControlLogix.
4.1.25.17.5. Ethernet wiring:
4.1.25.17.6. RJ45 connector according to IEC 60603-7, 2 or 4 pair Category 5e
4.1.25.17.7. min cable according to TIA 568-B.1 or Category 5 cable according
4.1.25.17.8. to ISO/IEC 24702.
4.1.25.18. North American temp code

4.1.25.18.1. T4

4.1.25.19. ATEX Temp Code

4.1.25.19.1. T4

4.2. ExpressPCB: Manufacturer must be able to take CAD drawings from the ExpressPCB Plus Software

4.2.1. DC Lab board (PCB) – Custom built by CWI

4.2.2. Analog Lab PCB set – Custom built by CWI

4.3. MKS

4.3.1. **Full Nipple Fitting - 100315103**

4.3.1.1. Component Type: Full Nipple

4.3.1.2. Series: Series 31

4.3.1.3. Material: 304 Stainless Steel

4.3.1.4. Flange Type: ISO-KF

4.3.1.5. Flange Size: NW25

4.3.1.6. Length: 3.94 in. (100 mm)

4.3.1.7. Dimension "A": 3.94 in.

4.3.2.**ISO-KF Blank Vacuum Flange – 100311703**

4.3.2.1. Component Type: Blank-Off Flange

4.3.2.2. Series: Series 31

4.3.2.3. Material: 304 Stainless Steel

4.3.2.4. Flange Type: ISO-KF

4.3.2.5. Flange Size: NW25

4.3.2.6. Tube OD: Blank

4.3.2.7. Thickness: 0.20 in. (5 mm)

4.3.2.8. Dimension "A": 0.20 in.

4.3.3. **Centering Ring Seal Assembly – 100312503**

4.3.3.1. Component Type: Centering Ring

4.3.3.2. Series: Series 31

4.3.3.3. Material: Aluminum

4.3.3.4. Seal Material: Buna-N

4.3.3.5. Flange Type: ISO-KF

4.3.3.6. Flange Size: NW25

4.3.3.7. Maximum Temperature: 80°C

4.3.4. **Wing Nut Flange Clamp, NW25 Size ISO-KF Vacuum Flange – 100312903**

4.3.4.1.1. Component Type: Wing Nut Flange Clamp

4.3.4.2. Series: Series 31

4.3.4.3. Material: Aluminum

4.3.4.4. Flange Type: ISO-KF

4.3.4.5. Flange Size: NW25

4.3.4.6. Width: 0.63 in. (16 mm)
4.3.4.7. Outer Diameter: 2.17 in. (55 mm)
4.3.4.8. Dimension "A": 2.76 in.
4.3.4.9. Dimension "B": 2.17 in.
4.3.4.10. Dimension "C": 0.63 in.

4.3.5. **Buna-N O-Ring, NW25 Size ISO-KF Vacuum Flange, 2-320 O-Ring Size – 100313903**
4.3.5.1. Component Type: O-Ring
4.3.5.2. Series: Series 31
4.3.5.3. Seal Material: Buna-N
4.3.5.4. Flange Type: ISO-KF
4.3.5.5. Flange Size: NW25
4.3.5.6. O-Ring Size: 2-320
4.3.5.7. Compound: N674-70
4.3.5.8. Maximum Bakeout Temperature: 80°C

4.4. NIDA

4.4.1. **130ST Trainer – NIDA – 91301300**
4.4.1.1. Primary Power: 110-130 VAC 60Hz (0.6A max) or 220-240 VAC 50/60Hz (0.3A max), switched controlled & primary fuse protection.
4.4.1.2. DC Power Sources:
4.4.1.2.1. 0 to –15 volts DC with selectable voltages and current up to 1 ampere.
4.4.1.2.2. 0 to +24 volts DC with selectable voltages and current up to 1 ampere.
4.4.1.2.3. DC power supply meter ranging from 0 to 25 volts.
4.4.1.3. AC Power Sources: Dual 12 VAC at .83A each.
4.4.1.4. Communications Link: Serial or USB computer interface.
4.4.1.5. Display: 7” Full color touch screen
4.4.1.6. Operating Temperature:
4.4.1.6.1. 50 to 104 degrees Fahrenheit ambient
4.4.1.6.2. 10 to 40 degrees Celsius ambient.
4.4.1.7. Dimensions: 17.3”W (44cm) 12.6”D (32cm) 4.7”H (12cm)
4.4.1.8. Weight: 11 lbs. (5 kg)
4.4.1.9. Construction: Formed aluminum base, matte finish overlay with touch screen.

4.4.2. **NIDA License – NIDA – 91900009**
4.4.2.1. Student access licenses to NIDA course material.
4.4.2.2. Licenses mut be compatible and able to interface with 130ST Trainer
4.4.2.3. Student Licenses must cover all material with the following card sets:
4.4.2.3.1. 1401 DC Card Sets
4.4.2.3.2. 1402 AC Card Sets
4.4.2.3.3. 1403 Analog Card Sets
4.4.2.3.4. 2105 Digital Card Sets

4.4.3. **1401 DC Card sets – NIDA – 91314010**

4.4.3.1. Interfaces with the Model 1401 DC Industrial program lesson content for experiment operation and control.

4.4.3.2. Five-year warranty

4.4.3.3. Self-cleaning contacts to ensure a proper connection with the 130ST trainer.

4.4.3.4. Computer-controlled, non-destructive fault insertion and removal.

4.4.3.5. Critical card keying avoids incorrect placement of the card on the trainer.

4.4.3.6. All devices and components are student accessible for analysis and signal measurement

4.4.3.7. Circuit card storage box included

4.4.3.8. Must include all the following experiment cards:

4.4.3.8.1. PC130-CF Console Familiarization

4.4.3.8.2. PC130-2 Low E Measurements

4.4.3.8.3. PC130-4A Current Measurements

4.4.3.8.4. PC130-5 Ohm's Law

4.4.3.8.5. PC130-6A Series Circuits

4.4.3.8.6. PC130-8A Parallel Circuits

4.4.3.8.7. PC130-9A Series-Parallel Circuits

4.4.3.8.8. PC130-9C Voltage Dividers

4.4.3.8.9. PC130-10A Bridge Circuits

4.4.3.8.10. PC130-W1 Conn. Troubleshooting I

4.4.3.8.11. PC130-W2 Conn. Troubleshooting II

4.4.3.8.12. PC130-W3 Conn. Troubleshooting III

4.4.4. **1402 AC Card sets – NIDA – 91314020**

4.4.4.1. Interfaces with the Model 1402 AC Industrial program lesson content for experiment operation and control

4.4.4.2. Five-year warranty

4.4.4.3. Self-cleaning contacts to ensure a proper connection with the 130ST trainer

4.4.4.4. Computer-controlled, non-destructive fault insertion and removal

4.4.4.5. Critical card keying avoids incorrect placement of the card on the trainer

4.4.4.6. All devices and components are student accessible for analysis and signal measurement

4.4.4.7. Circuit card storage box included

4.4.4.8. Must include all the following experiment cards:

4.4.4.8.1. PC130-10 Signal Measurement

4.4.4.8.2. PC130-11 Capacitors/Inductors

4.4.4.8.3. PC130-12 Capacitance Circuits

4.4.4.8.4. PC130-13 Inductive Circuits

4.4.4.8.5. PC130-14A RC Circuits A

4.4.4.8.6. PC130-14B RC Circuits B

4.4.4.8.7. PC130-15 RC Time Constants

4.4.4.8.8. PC130-16B RL Filters

4.4.4.8.9. PC130-17 Series RCL Circuits
4.4.4.8.10. PC130-18A Series Resonance A
4.4.4.8.11. PC130-18B Series Resonance B
4.4.4.8.12. PC130-19 Parallel RCL Circuits
4.4.4.8.13. PC130-20A Parallel Resonance A
4.4.4.8.14. PC130-20B Parallel Resonance B
4.4.4.8.15. PC130-21 Transformers
4.4.4.8.16. PC130-82 Electrical Circuits I
4.4.4.8.17. PC130-83 Electrical Circuits II
4.4.4.8.18. PC130-84B Relay Logic
4.4.4.8.19. PC130-182 Magnetism
4.4.4.8.20. PC130-183 Electromagnetics

4.4.5.**NIDA serial adapters – NIDA – 91000153**

4.4.5.1. Ports: 1
4.4.5.2. Interface: Serial
4.4.5.3. Bus Type: USB 2.0
4.4.5.4. Port Style: Cable Adapters
4.4.5.5. Industry Standards: USB 1.1/2.0
4.4.5.6. Product Height: 0.6 in
4.4.5.7. Product Length: 36.0 in
4.4.5.8. Weight of Product: 2.1 oz
4.4.5.9. Product Width: 1.8 in
4.4.5.10. Cable Length: 36.0 in
4.4.5.11. OS Compatibility:
4.4.5.11.1. Windows® 7, 8.1, 10, 11
4.4.5.11.2. Windows Server® 2016, 2019, 2022
4.4.5.11.3. macOS 10.11 to 10.15, 11.0, 12.0, 13.0, 14.0, 15.0

4.4.6.**1403 Analog Card sets – NIDA**

4.4.6.1. Interfaces with the Model 1403 Analog Industrial program lesson content for experiment operation and control.
4.4.6.2. Five-year warranty
4.4.6.3. Self-cleaning contacts to ensure a proper connection with the 130ST trainer.
4.4.6.4. Computer-controlled, non-destructive fault insertion and removal.
4.4.6.5. Critical card keying avoids incorrect placement of the card on the trainer.
4.4.6.6. All devices and components are student accessible for analysis and signal measurement
4.4.6.7. Circuit card storage box included
4.4.6.8. Must include all the following experiment cards:
4.4.6.8.1. 91300221 PC 130-22A DIODES
4.4.6.8.2. 91300280 PC 130-28 TRANSISTOR OPERATION
4.4.6.8.3. 91300290 PC 130-29 TRANSISTOR BIAS
4.4.6.8.4. 91300301 PC 130-30A COMMON EMITTER

4.4.6.8.5. 91300310 PC 130-31 EMITTER FOLLOWER
4.4.6.8.6. 91300330 PC 130-33 RC COUPLED AMPLIFIERS
4.4.6.8.7. 91300340 PC 130-34 COMPLEMENTARY SYMMETRY
4.4.6.8.8. 91300490 PC 130-49 FET OPERATION
4.4.6.8.9. 91300521 PC 130-52A SCR CONTROL CIRCUIT DC
4.4.6.8.10. 91300522 PC 130-52B SCR CONTROL CIRCUIT AC
4.4.6.8.11. 91300880 PC 130-88 TRIACS
4.4.6.8.12. 99130054 PC 130-54 OPERATIONAL AMPLIFIER

4.4.7. **2105 Digital Card Sets – NIDA**

4.4.7.1. Interfaces with the Model 1403 Analog Industrial program lesson content for experiment operation and control.
4.4.7.2. Five-year warranty
4.4.7.3. Self-cleaning contacts to ensure a proper connection with the 130ST trainer.
4.4.7.4. Computer-controlled, non-destructive fault insertion and removal.
4.4.7.5. Critical card keying avoids incorrect placement of the card on the trainer.
4.4.7.6. All devices and components are student accessible for analysis and signal measurement
4.4.7.7. Circuit card storage box included
4.4.7.8. Must include all the following experiment cards:
4.4.7.8.1. 91302404 PC 130-2404 GATES I
4.4.7.8.2. 91302406 PC 130-2406 GATES II
4.4.7.8.3. 91302408 PC 130-2408 FLIP-FLOPS I
4.4.7.8.4. 91302410 PC 130-2410 FLIP-FLOPS II
4.4.7.8.5. 91302412 PC 130-2412 COUNTERS I
4.4.7.8.6. 91302414 PC 130-2414 COUNTERS II
4.4.7.8.7. 91302416 PC 130-2416 ENCODER
4.4.7.8.8. 91302418 PC 130-2418 DECODER I
4.4.7.8.9. 91302420 PC 130-2420 DECODER II
4.4.7.8.10. 91302422 PC 130-2422 SHIFT REGISTER

4.5. RealityWorks Inc.

4.5.1. **AC Wiring Trainer– Realityworks Inc. – 57010201**

4.5.1.1. Wall Panel Dimensions: 31.5” x 5.5” x 21.75”
4.5.1.2. Electrical wiring components:
4.5.1.2.1. 2 single Pole Switches
4.5.1.2.2. 2 3-way switches
4.5.1.2.3. 3 15A duplex receptacles
4.5.1.2.4. 2 ceramic lamp holders
4.5.1.2.5. 1 ceramic lamp holder, with pull chain
4.5.1.2.6. 20 feet of 14-2 NM-B with ground wire
4.5.1.2.7. 13 feet of 14-3 NM-B with ground wire
4.5.1.2.8. 25 standard wire connectors
4.5.1.2.9. 1 roll of black electrical tape

4.6. United Concept Trainers

4.6.1. **Electrical Diagnostics Trainer – United Concepts Trainers - 012016SPCHH**

4.6.1.1. Five Circuits

4.6.1.1.1. Series

4.6.1.1.2. Parallel Stoplamp

4.6.1.1.3. Cooling Fan

4.6.1.1.4. Horn

4.6.1.1.5. Heater

4.6.1.2. Frame: Aluminum

4.6.1.3. Face: Resin-core aluminum

4.6.1.4. Size: 48.5” W x 31”H x 4.5”D

4.6.1.5. Weight: 42 lbs.

4.7. Kurt J. Lesker.

4.7.1.**Fluit Fitting - ADAPTER,SS,QF25 TO 1/4" SWAGELOK - QF25X4SWG**

4.7.1.1. KF25 (1.57” OD) Output End

4.7.1.2. ¼” Swagelok Input end

4.8. Meta

4.8.1.**Meta Quest 3**

4.8.1.1. 512GB Storage

4.8.1.2. 8GB Dram

4.8.1.3. Standalone VR Headset

4.8.1.4. Compatible with the Meta Quest Software

4.8.1.5. Hardware compatible with Tap3D software and training solutions

4.8.1.6. Hardware compatible with Uptale software and training solutions

4.9. Swagelok

4.9.1. **Stainless Steel Swagelok Tube Fitting, Male Tube Adapter, 1/4 in. Tube OD x 7/16-20 Male SAE/MS Straight Thread – SS-4-TA-1-4**

4.9.1.1. Body Material: Stainless Steel

4.9.1.2. Connection 1 Size: ¼ in.

4.9.1.3. Connection 1 Type: Swagelok® Tube Adapter

4.9.1.4. Connection 2 Size: 7/16-20 in.

4.9.1.5. Connection 2 Type: Male SAE/MS Straight Thread

4.9.1.6. Cleaning Process: Standard Cleaning and Packaging (SC-10)

4.9.1.7. Flow Restrictor: No

4.9.1.8. Bored Through: No

4.9.2. **Stainless Steel Swagelok Tube Fitting, Union, 1/4 in. Tube OD - SS-400-6**

4.9.2.1. Body Material: 316 Stainless Steel

4.9.2.2. Connection 1 Size: ¼ in.

4.9.2.3. Connection 1 Type: Swagelok® Tube Fitting

4.9.2.4. Connection 2 Size: ¼ in.
4.9.2.5. Connection 2 Type: Swagelok® Tube Fitting
4.9.2.6. Cleaning Process: Standard Cleaning and Packaging (SC-10)
4.9.2.7. Platings/Coatings: No Coating
4.9.2.8. Flow Restrictor: No
4.9.2.9. Bored Through: No

4.9.3. **XT4 Series Teflon Lined Hose 1/4" Tube Stub Ends, 36" Long - SS-XT4TA4TA4-36**
4.9.3.1. Body Material:
4.9.3.1.1. 304 Stainless Steel
4.9.3.1.2. PTFE
4.9.3.2. Fiber Braids
4.9.3.3. Connection Type: ¼" Swagelok® Tube Adapter
4.9.3.4. 36" Length

4.9.4. **Stainless Steel 1-Piece 40G Series Ball Valve, 1.4 Cv, 1/4 in. Swagelok Tube Fitting - SS-43GS4**
4.9.4.1. Body Material: 316 Stainless Steel
4.9.4.2. Connection 1 Size: ¼ in.
4.9.4.3. Connection 1 Type: Swagelok® Tube Fitting
4.9.4.4. Connection 2 Size: ¼ in.
4.9.4.5. Connection 2 Type: Swagelok® Tube Fitting
4.9.4.6. Cleaning Process: Standard Cleaning and Packaging (SC-10)
4.9.4.7. CV Maximum: 1.4
4.9.4.8. Flow Path: Standard
4.9.4.9. Handle Color: Black
4.9.4.10. Handle Style: Lever
4.9.4.11. Packing Material: Modified PTFE UHMWPE

4.9.5. **Stainless Steel Swagelok Tube Fitting, Union Tee, 1/4 in. Tube OD - SS-400-3**
4.9.5.1. Body Material: 316 Stainless Steel
4.9.5.2. Connection 1 Size: ¼ in.
4.9.5.3. Connection 1 Type: Swagelok® Tube Fitting
4.9.5.4. Connection 2 Size: ¼ in.
4.9.5.5. Connection 2 Type: Swagelok® Tube Fitting
4.9.5.6. Connection 3 Size: ¼ in.
4.9.5.7. Connection 3 Type: Swagelok® Tube Fitting
4.9.5.8. Cleaning Process: Standard Cleaning and Packaging (SC-10)
4.9.5.9. Platings/Coatings: No Coating
4.9.5.10. Flow Restrictor: No
4.9.5.11. Bored Through: No

4.9.6. **Stainless Steel Swagelok Tube Fitting, Female Tube Adapter, 1/4 in. Tube OD x 1/4 in. Female NPT - SS-4-TA-7-4**

4.9.6.1. Body Material: 316 Stainless Steel
4.9.6.2. Connection 1 Size: ¼ in.
4.9.6.3. Connection 1 Type: Swagelok® Tube Adapter
4.9.6.4. Connection 2 Size: ¼ in.
4.9.6.5. Connection 2 Type: Female NPT
4.9.6.6. Cleaning Process: Standard Cleaning and Packaging (SC-10)
4.9.6.7. Flow Restrictor: No
4.9.6.8. Bored Through: No

4.9.7. **Stainless Steel Swagelok Tube Fitting, Union Elbow, 1/4 in. Tube OD - SS-400-9**
4.9.7.1. Body Material: 316 Stainless Steel
4.9.7.2. Connection 1 Size: ¼ in.
4.9.7.3. Connection 1 Type: Swagelok® Tube Fitting
4.9.7.4. Connection 2 Size: ¼ in.
4.9.7.5. Connection 2 Type: Swagelok® Tube Fitting
4.9.7.6. Cleaning Process: Standard Cleaning and Packaging (SC-10)
4.9.7.7. Flow Restrictor: No
4.9.7.8. Bored Through: No

4.9.8. **316 Stainless Steel VCR Face Seal Fitting, Swagelok Tube Fitting Connector Body, 1/4 in. VCR x 1/4 in. Tube Fitting - SS-4-VCR-6-400**
4.9.8.1. Body Material: 316 Stainless Steel
4.9.8.2. Connection 1 Size: ¼ in.
4.9.8.3. Connection 1 Type: VCR® Metal Gasket Face Seal Fitting
4.9.8.4. Connection 2 Size: ¼ in.
4.9.8.5. Connection 2 Type: Swagelok® Tube Fitting
4.9.8.6. Cleaning Process: Standard Cleaning and Packaging (SC-10)
4.9.8.7. Flow Restrictor: No

4.9.9. **316 Stainless Steel Welded VCR Face Seal Fitting, 1/4 in. Rotating Female Union - SS-4-WVCR-6-DF**
4.9.9.1. Body Material: 316 Stainless Steel
4.9.9.2. Connection 1 Size: ¼ in.
4.9.9.3. Connection 1 Type:
4.9.9.3.1. Welded Female VCR® Metal Gasket
4.9.9.3.2. Face Seal Fitting
4.9.9.4. Connection 2 Size: ¼ in.
4.9.9.5. Connection 2 Type:
4.9.9.5.1. Welded Female VCR® Metal Gasket
4.9.9.5.2. Face Seal Fitting
4.9.9.6. Cleaning Process: Standard Cleaning and Packaging (SC-10)
4.9.9.7. Flow Restrictor: No

4.9.10. **316 Stainless Steel VCR Face Seal Fitting, 1/4 in. Double Male Union Body - SS-4-VCR-6-DM**

4.9.10.1. Body Material: 316 Stainless Steel
4.9.10.2. Connection 1 Size: ¼ in.
4.9.10.3. Connection 1 Type: VCR® Metal Gasket Face Seal Fitting
4.9.10.4. Connection 2 Size: ¼ in.
4.9.10.5. Connection 2 Type: VCR® Metal Gasket Face Seal Fitting
4.9.10.6. Cleaning Process: Standard Cleaning and Packaging (SC-10)
4.9.10.7. Flow Restrictor: No

4.9.11. **316 Stainless Steel VCR Face Seal Fitting, 1/4 in. Plug - SS-4-VCR-P**

4.9.11.1. Body Material: 316 Stainless Steel
4.9.11.2. Connection 1 Size: ¼ in.
4.9.11.3. Connection 1 Type: VCR® Metal Gasket Face Seal Fitting
4.9.11.4. Cleaning Process: Standard Cleaning and Packaging (SC-10)
4.9.11.5. Flow Restrictor: No

4.9.12. **Stainless Steel Swagelok Tube Fitting, Male Tube Adapter, 1/4 in. Tube OD x 1/4 in. Male NPT - SS-4-TA-1-4**

4.9.12.1. Body Material: 316 Stainless Steel
4.9.12.2. Connection 1 Size: ¼ in.
4.9.12.3. Connection 1 Type: Swagelok® Tube Adapter
4.9.12.4. Connection 2 Size: ¼ in.
4.9.12.5. Connection 2 Type: Male NPT
4.9.12.6. Cleaning Process: Standard Cleaning and Packaging (SC-10)
4.9.12.7. Flow Restrictor: No
4.9.12.8. Bored Through: No

4.9.13. **Stainless Steel Pipe Fitting, Hex Coupling, 1/4 in. Female NPT - SS-4-HCG**

4.9.13.1. Body Material: 316 Stainless Steel
4.9.13.2. Connection 1 Size: ¼ in.
4.9.13.3. Connection 1 Type: Female NPT
4.9.13.4. Connection 2 Size: ¼ in.
4.9.13.5. Connection 2 Type: Female NPT
4.9.13.6. Cleaning Process: Standard Cleaning and Packaging (SC-10)
4.9.13.7. Flow Restrictor: No

4.9.14. **Stainless Steel Pipe Fitting, Hex Long Nipple, 1/4 in. Male NPT, 4 in. Length - SS-4-HLN-4.00**

4.9.14.1. Body Material: 316 Stainless Steel
4.9.14.2. Connection 1 Size: ¼ in.
4.9.14.3. Connection 1 Type: Male NPT
4.9.14.4. Connection 2 Size: ¼ in.
4.9.14.5. Connection 2 Type: Male NPT
4.9.14.6. Cleaning Process: Standard Cleaning and Packaging (SC-10)

4.9.14.7. Flow Restrictor: No
4.9.14.8. Length: 4 in. (10.2 cm)

4.9.15. **Stainless Steel Pipe Fitting, Pipe Plug, 1/4 in. Male NPT - SS-4-P**
4.9.15.1. Body Material: 316 Stainless Steel
4.9.15.2. Connection 1 Size: ¼ in.
4.9.15.3. Connection 1 Type: Male NPT
4.9.15.4. Cleaning Process: Standard Cleaning and Packaging (SC-10)
4.9.15.5. Flow Restrictor: No

4.9.16. **Hand Tube Bender, 1/4 in. Tube OD, 9/16 in. Bend Radius - MS-HTB-4T**
4.9.16.1. Bend Radius: 9/16 in. Bend Radius
4.9.16.2. Tube OD: ¼ in.
4.9.16.3. eClass (4.1) - 21041603
4.9.16.4. eClass (5.1.4) - 21049890
4.9.16.5. eClass (6.0) - 21044002
4.9.16.6. eClass (6.1) - 21040100
4.9.16.7. UNSPSC (4.03) - 23171703
4.9.16.8. UNSPSC (10.0) - 27112501
4.9.16.9. UNSPSC (11.0501) - 27112501
4.9.16.10. UNSPSC (13.0601) - 27112501
4.9.16.11. UNSPSC (15.1) - 27112501
4.9.16.12. UNSPSC (17.1001) - 40183101

4.9.17. **Tube Cutter for Stainless Steel, Soft Copper, and Aluminum Tubing from 3/16 to 1 in. OD and 6 to 25 mm outside diameter. - MS-TC-308**
4.9.17.1. Cutting Materials:
4.9.17.1.1. Stainless Steel
4.9.17.1.2. Soft Copper
4.9.17.1.3. Aluminum

4.9.17.2. O.D. Cutting Range:
4.9.17.2.1. 3/16 to 1 in.
4.9.17.2.2. 6 to 25 mm outside diameter.

4.9.18. **Tube Cutter for Stainless Steel, Soft Copper, and Aluminum Tubing from 3/16 to 1 in. OD and 6 to 25 mm outside diameter. - MS-TCW-308**
4.9.18.1. Cutting Materials:
4.9.18.1.1. Stainless Steel
4.9.18.1.2. Soft Copper
4.9.18.1.3. Aluminum

4.9.18.2. O.D. Cutting Range:
4.9.18.2.1. 3/16 to 1 in.

4.9.18.2.2. 6 to 25 mm outside diameter.

4.9.18.3. Compatible with MS-TCW-308

4.9.19. **Tube Cutter Replacement Cutting Wheel - MS-TCW-308**

4.9.19.1. Cutting Materials:

4.9.19.1.1. Stainless Steel

4.9.19.1.2. Soft Copper

4.9.19.1.3. Aluminum

4.9.19.2. Compatible with MS-TC-308

4.9.20. **Tube Deburring Tool, 3/16 in. to 1 1/2 in. and 4 to 38 mm OD - MS-TDT-24**

4.9.20.1. O.D. Deburring Range:

4.9.20.1.1. 3/16 in. – 1 ½ in.

4.9.20.1.2. 4mm – 38 mm

4.9.21. **Gap Inspection Gauge, 1/4 in. and 6 mm Female Nuts - MS-IG-400**

4.9.21.1. Connection 1 Size: ¼ in. or 6 mm

4.9.21.2. Cleaning Process: Standard Cleaning and Packaging (SC-10)

4.9.21.3. Flow Restrictor: No

4.9.22. **1/4" OD X 0.35 Wall SS Seamless Tubing (ft.) - SS-T4-S-035-20D**

4.9.22.1. Tube OD: ¼ in.

4.9.22.2. Tube Wall: 0.035”

4.9.22.3. Weight: 0.080 lb/ft

4.9.22.4. Working Pressure: 5,100 psig

4.9.23. **316L Stainless Steel VCR Face Seal Fitting, 1/4 in. Unplated Gasket, Non-Retained Style - SS-4-VCR-2-VS**

4.9.23.1. Body Material: 316L Stainless Steel

4.9.23.2. Cleaning Process: Standard Cleaning and Packaging (SC-10)

4.9.23.3. Gasket Style: Non-Retained Style Gasket

4.9.23.4. Gasket Size: ¼ in.

4.9.23.5. Flow Restrictor: No

4.9.24. **316 Stainless Steel Ferrule Set (1 Front Ferrule/1 Back Ferrule) for 1/4 in. Tube Fitting, Order in multiples of 10 - SS-400-SET**

4.9.24.1. Body Material: 316 Stainless Steel

4.9.24.2. Connection 1 Size: ¼ in.

4.9.24.3. Connection 1 Type: Swagelok® Tube Fitting

4.9.24.4. Cleaning Process: Standard Cleaning and Packaging (SC-10)

4.9.24.5. Flow Restrictor: No

4.9.25. **316 Stainless Steel Nut for 1/4 in. Swagelok Tube Fitting - SS-402-1**

4.9.25.1. Body Material: 316 Stainless Steel

4.9.25.2. Connection 1 Size: ¼ in.

4.9.25.3. Connection 1 Type: Female Swagelok® Tube Fitting

4.9.25.4. Cleaning Process: Standard Cleaning and Packaging (SC-10)

4.9.25.5. Flow Restrictor: No

4.10. McMaster-Carr

4.10.1. **Easy-Carry Spool Rack - 25" Wide x 11-1/2" High x 8" Deep - 22315T62**

4.10.1.1. **Stationary or Mobile**

4.10.1.1.1. Stationary

4.10.1.2. **Mounting Location**

4.10.1.2.1. Freestanding

4.10.1.3. **Number of Storage Levels**

4.10.1.3.1. 1

4.10.1.4. **Overall Width**

4.10.1.4.1. 25"

4.10.1.5. **Height**

4.10.1.5.1. 11 1/2"

4.10.1.6. **Depth**

4.10.1.6.1. 8"

4.10.1.7. **Overall Capacity**

4.10.1.7.1. 70 lbs.

4.10.1.8. **For Maximum Spool OD**

4.10.1.8.1. 11"

4.10.1.9. **Spindle Diameter**

4.10.1.9.1. 5/8"

4.10.1.10. **Length**

4.10.1.10.1. 23"

4.10.1.11. **Material**

4.10.1.11.1. Powder-Coated Steel

4.10.1.12. **Spindle Material**

4.10.1.12.1. Galvanized Steel

4.10.1.13. **Assembled or Unassembled**

4.10.1.13.1. Assembled

4.10.2. **Neoprene Trim, 1/16" Wide x 5/16" High Inside, 10' Long - 9279K32**

4.10.2.1. **Mount Type**

4.10.2.1.1. Push On

4.10.2.2. **Profile**

4.10.2.2.1. U

4.10.2.3. **Material**

4.10.2.3.1. Neoprene Rubber

4.10.2.4. **Inside**

4.10.2.4.1. Width (A)

4.10.2.4.1.1. 1/16"

4.10.2.4.2. Height (B)

4.10.2.4.2.1. 5/16"

4.10.2.5. **Outside**

4.10.2.5.1. Width (C)

4.10.2.5.1.1. 5/16"

4.10.2.5.2. Height (D)

4.10.2.5.2.1. 37/64"

4.10.2.6. **Flexibility**

4.10.2.6.1. Very Flexible

4.10.2.7. **Nonmarking**

4.10.2.7.1. Yes

4.10.2.8. **For Use Outdoors**

4.10.2.8.1. No

4.10.2.9. **Hardness Rating**

4.10.2.9.1. Medium

4.10.2.10. **Hardness**

4.10.2.10.1. Durometer 55A

4.10.2.11. **Temperature Range**

4.10.2.11.1. -20° to 350° F

4.10.2.12. **Length**

4.10.2.12.1. 10 ft.

4.10.3. **T-Slotted Framing - Triple Rail, Silver, 3" High x 1" Wide, Solid - 47065T511**

4.10.3.1. **Framing Type**

4.10.3.1.1. T-Slot

4.10.3.2. **T-Slot Framing Component**

4.10.3.2.1. Rail

4.10.3.3. **Rail Profile**

4.10.3.3.1. Triple

4.10.3.4. **Rail Height**

4.10.3.4.1. 3"

4.10.3.5. **Rail Width**

4.10.3.5.1. 1"

4.10.3.6. **Rail Construction**

4.10.3.6.1. Solid

4.10.3.7. **Rail Texture**

4.10.3.7.1. Grooved

4.10.3.8. **T-Slot Width**

4.10.3.8.1. 0.256"

4.10.3.9. **T-Slot Depth**

4.10.3.9.1. 0.323"

4.10.3.10. **Center Hole Diameter**

4.10.3.10.1. 0.205"

4.10.3.11. **Material**

4.10.3.11.1. 6005 Aluminum

4.10.3.12. **Temper**

4.10.3.12.1. T6

4.10.3.13. **Finish**

4.10.3.13.1. Anodized

4.10.3.14. **Color**

4.10.3.14.1. Silver

4.10.3.15. **System of Measurement**

4.10.3.15.1. Inch

4.10.3.16. **Length**

4.10.3.16.1. 2 ft.

4.10.4. **Air Hose - Brass 1/4 Industrial Quick-Disconnect Socket x Steel 1/4 Plug, 200 PSI - 5138K14**

4.10.4.1. **For Use With**

4.10.4.1.1. Air

4.10.4.2. **Temperature Range**

4.10.4.2.1. -40° to 200° F

4.10.4.3. **Connection Type**

4.10.4.3.1. Hose × Hose

4.10.4.4. **Fittings**

4.10.4.4.1. Brass Industrial Quick-Disconnect Female Socket × Steel Industrial Quick-Disconnect Male Plug

4.10.4.5. **Coupling Size**

4.10.4.5.1. 1/4 × 1/4

4.10.4.6. **ID**

4.10.4.6.1. 1/4"

4.10.4.7. **OD**

4.10.4.7.1. 1/2"

4.10.4.8. **Bend Radius**

4.10.4.8.1. 1 1/2"

4.10.4.9. **Maximum Pressure**

4.10.4.9.1. 200 psi @ 72° F

4.10.4.10. **Color**

4.10.4.10.1. Black

4.10.4.11. **Clarity**

4.10.4.11.1. Opaque

4.10.4.12. **For Use Outdoors**

4.10.4.12.1. Yes

4.10.4.13. **Material**

4.10.4.13.1. EPDM Rubber

4.10.4.14. **Cover Material**

4.10.4.14.1. EPDM Rubber

4.10.4.15. **Interior Texture**

4.10.4.15.1. Smooth

4.10.4.16. **Internal Reinforcement**

4.10.4.16.1. Yarn

4.10.4.17. **Length**

4.10.4.17.1. 10 ft.

4.10.5. **Industrial Quick-Disconnect Hose Coupling for Air - 1/4 Size, Zinc-Plated Steel Plug, 1/4 NPTF Male End - 6534K46**

4.10.5.1. **For Use With**

4.10.5.1.1. Air

4.10.5.2. **Shape**

4.10.5.2.1. Straight

4.10.5.3. **Type**

4.10.5.3.1. Adapter

4.10.5.4. **Quick-Disconnect Component**

4.10.5.4.1. Plug

4.10.5.5. **Flow Control**

4.10.5.5.1. Open

4.10.5.6. **Hose Connection**

4.10.5.6.1. Connection Style

4.10.5.6.1.1. Quick Disconnect

4.10.5.6.2. Quick-Disconnect Shape

4.10.5.6.2.1. Industrial

4.10.5.6.3. Gender

4.10.5.6.3.1. Male

4.10.5.7. **Coupling Size**

4.10.5.7.1. 1/4

4.10.5.8. **Plug Tip**

4.10.5.8.1. Length

4.10.5.8.1.1. 3/16"

4.10.5.8.2. Diameter

4.10.5.8.2.1. 5/16"

4.10.5.9. **Pipe Connection**

4.10.5.9.1. Connection Style

4.10.5.9.1.1. Threaded

4.10.5.9.2. Gender

4.10.5.9.2.1. Male

4.10.5.10. **Pipe Size**

4.10.5.10.1. ¼’

4.10.5.11. **Thread Type**

4.10.5.11.1. NPTF

4.10.5.12. **Material**

4.10.5.12.1. Zinc-Plated Steel

4.10.5.13. **Maximum Pressure**

4.10.5.13.1. 300 psi @ 72° F

4.10.5.14. **Temperature Range**

4.10.5.14.1. -40° to 225° F

4.10.5.15. **Length**

4.10.5.15.1. 1 11/16"

4.10.6. **Industrial Quick-Disconnect Hose Coupling for Air - Zinc-Plated Steel Plug, 1/4 Coupling Size, 1/4 BSPP Female - 1283T24**

4.10.6.1. **For Use With**

4.10.6.1.1. Air

4.10.6.2. **Shape**

4.10.6.2.1. Straight

4.10.6.3. **Type**

4.10.6.3.1. Adapter

4.10.6.4. **Quick-Disconnect Component**

4.10.6.4.1. Plug

4.10.6.5. **Flow Control**

4.10.6.5.1. Open

4.10.6.6. **Hose Connection**

4.10.6.6.1. Connection Style

4.10.6.6.1.1. Quick Disconnect

4.10.6.6.2. Quick-Disconnect Shape

4.10.6.6.2.1. Industrial

4.10.6.6.3. Gender

4.10.6.6.3.1. Male

4.10.6.7. **Coupling Size**

4.10.6.7.1. 1/4

4.10.6.8. **Plug Tip**

4.10.6.8.1. Length

4.10.6.8.1.1. 3/16"

4.10.6.8.2. Diameter

4.10.6.8.2.1. 5/16"

4.10.6.9. **Pipe Connection**

4.10.6.9.1. Connection Style

4.10.6.9.1.1. Threaded

4.10.6.9.2. Gender

4.10.6.9.2.1. Female

4.10.6.10. **Pipe Size**

4.10.6.10.1. 1/4

4.10.6.11. **Thread Type**

4.10.6.11.1. BSPP

4.10.6.12. **Material**

4.10.6.12.1. Zinc-Plated Steel

4.10.6.13. **Maximum Pressure**

4.10.6.13.1. 300 psi @ 72° F

4.10.6.14. **Temperature Range**

4.10.6.14.1. -40° to 225° F

4.10.6.15. **Length**

4.10.6.15.1. 1 21/32"

4.10.7. **Universal Quick-Disconnect Hose Socket for Air - 1/4 Coupling Size, 1/4 NPT Male - 53475K31**

4.10.7.1. **For Use With**

4.10.7.1.1. Air

4.10.7.2. **Shape**

4.10.7.2.1. Straight

4.10.7.3. **Type**

4.10.7.3.1. Adapter

4.10.7.4. **Quick-Disconnect Component**

4.10.7.4.1. Socket

4.10.7.5. **Socket Locking Type**

4.10.7.5.1. Push to Connect

4.10.7.6. **Flow Control**

4.10.7.6.1. With Shut-Off

4.10.7.7. **Hose Connection**

4.10.7.7.1. Connection Style

4.10.7.7.1.1. Quick Disconnect

4.10.7.7.2. Quick-Disconnect Shape

4.10.7.7.2.1. Universal

4.10.7.7.3. Compatible Plug Shape

4.10.7.7.3.1. Industrial, ARO, Tru-Flate, Lincoln, European

4.10.7.7.4. Gender

4.10.7.7.4.1. Female

4.10.7.8. **Coupling Size**

4.10.7.8.1. 1/4

4.10.7.9. **Pipe Connection**

4.10.7.9.1. Connection Style

4.10.7.9.1.1. Threaded

4.10.7.9.2. Gender

4.10.7.9.2.1. Male

4.10.7.10. **Pipe Size**

4.10.7.10.1. 1/4

4.10.7.11. **Thread Type**

4.10.7.11.1. NPT

4.10.7.12. **Material**

4.10.7.12.1. Brass

4.10.7.13. **Sleeve Material**

4.10.7.13.1. Brass

4.10.7.14. **Gasket Material**

4.10.7.14.1. Buna-N Rubber

4.10.7.15. **Maximum Pressure**

4.10.7.15.1. 300 psi @ 72° F

4.10.7.16. **Temperature Range**

4.10.7.16.1. -40° to 250° F

4.10.7.17. **Length**

4.10.7.17.1. 2 29/64"

4.10.8. **Universal Quick-Disconnect Hose Socket for Air - 1/4 Coupling Size, 1/4 NPT Female - 53475K21**

4.10.8.1. **For Use With**

4.10.8.1.1. Air

4.10.8.2. **Shape**

4.10.8.2.1. Straight

4.10.8.3. **Type**

4.10.8.3.1. Adapter

4.10.8.4. **Quick-Disconnect Component**

4.10.8.4.1. Socket

4.10.8.5. **Socket Locking Type**

4.10.8.5.1. Push to Connect

4.10.8.6. **Flow Control**

4.10.8.6.1. With Shut-Off

4.10.8.7. **Hose Connection**

4.10.8.7.1. Connection Style

4.10.8.7.1.1. Quick Disconnect

4.10.8.7.2. Quick-Disconnect Shape

4.10.8.7.2.1. Universal

4.10.8.7.3. Compatible Plug Shape

4.10.8.7.3.1. Industrial, ARO, Tru-Flate, Lincoln, European

4.10.8.7.4. Gender

4.10.8.7.4.1. Female

4.10.8.8. **Coupling Size**

4.10.8.8.1. 1/4

4.10.8.9. **Pipe Connection**

4.10.8.9.1. Connection Style

4.10.8.9.1.1. Threaded

4.10.8.9.2. Gender

4.10.8.9.2.1. Female

4.10.8.10. **Pipe Size**

4.10.8.10.1. 1/4

4.10.8.11. **Thread Type**

4.10.8.11.1. NPT

4.10.8.12. **Material**

4.10.8.12.1. Brass

4.10.8.13. **Sleeve Material**

4.10.8.13.1. Brass

4.10.8.14. **Gasket Material**

4.10.8.14.1. Buna-N Rubber

4.10.8.15. **Maximum Pressure**

4.10.8.15.1. 300 psi @ 72° F

4.10.8.16. **Temperature Range**

4.10.8.16.1. -40° to 250° F

4.10.8.17. **Length**

4.10.8.17.1. 2 21/64"

4.11. RS-Online

4.11.1. **AMETEK Pittman GM9213-3 Gearmotor, 12VDC, 43rpm no load, 5.6oz/in torque const, .1/1.44A, 65.5 ratio - GM9213-3**

4.11.1.1. Frame Size (Mounting Face) (in) 2

4.11.1.2. Motor Frame Size (in) 1.58

4.11.1.3. Gear Frame Size (in) 2.000

4.11.1.4. Overall Body Length (in) 3.476

4.11.1.5. Supply Voltage (V) 12

4.11.1.6. Continuous Output Torque (oz-in) 140

4.11.1.7. Output Speed @ Cont. Torque (RPM) 7.44

4.11.1.8. Current @ Cont. Torque (A) 0.81

4.11.1.9. Continuous Output Power (W) 0.77

4.11.1.10. No Load Current (A) 0.15

4.11.1.11. No Load Output Speed (RPM) 38.8

4.11.1.12. Peak Current (A) 1.4

4.11.1.13. Peak Output Torque (oz-in) 310

4.11.1.14. Motor Constant (oz-in/√W) 1.94

4.11.1.15. Motor Torque Constant (oz-in/A) 5.6

4.11.1.16. Motor Voltage Constant (V/krpm) 4.14

4.11.1.17. Terminal Resistance (Ohms) 8.33

4.11.1.18. Inductance (mH) 6.2

4.11.1.19. Coulomb Friction Torque (oz-in) 0.5

4.11.1.20. Viscous Damping Factor (oz-in/krpm) 0.011

4.11.1.21. Electrical Time Constant (ms) 0.74

4.11.1.22. Mechanical Time Constant (ms) 15
4.11.1.23. Thermal Time Constant (min) 11
4.11.1.24. Thermal Resistance (ºC/Watt) 19
4.11.1.25. Maximum Winding Temperature (ºC) 155
4.11.1.26. Rotor Inertia (oz-in-s2) 0.00039
4.11.1.27. Output Bearing Sleeve
4.11.1.28. Gear Series G51A
4.11.1.29. Gear Ratio (xx.x:1) 65.5
4.11.1.30. Gear Type standard spur
4.11.1.31. Gear Efficiency 0.66
4.11.1.32. Gear Maximum Torque (oz-in) 175
4.11.1.33. Encoder Series n/a
4.11.1.34. Encoder Resolution (CPR) n/a
4.11.1.35. Encoder Output Channels n/a
4.11.1.36. Weight (Mass) (oz) 16

4.12. Automation Direct

4.12.1. **SureStep stepper motor, NEMA 23 frame, IP40, single shaft, 2.8A, 166 oz-in holding torque, 1.8-degree step angle, 200 steps per revolution, bipolar. Requires STP-EXT-xxx cable. - STP-MTR-23055**

4.12.1.1. Voltage Type | DC
4.12.1.2. Motor Type | Brushless
4.12.1.3. Number of Output Phases | 2
4.12.1.4. Integrated Brake | No
4.12.1.5. Motor Frame | NEMA 23
4.12.1.6. IP Rating | IP40
4.12.1.7. Shaft Type | Single
4.12.1.8. Shaft Diameter | 1/4in
4.12.1.9. Amperage Rating | 2.8A
4.12.1.10. Holding Torque Rating | 166 oz-in
4.12.1.11. Step Angle |1.8-degree
4.12.1.12. Steps per Revolution | 200
4.12.1.13. Winding Type | Bipolar
4.12.1.14. Cable Length | 1ft
4.12.1.15. Connector Type | 4-position male

4.12.2. **SureStep extension cable, 4-pin connector to pigtail, 6ft cable length. For use with SureStep MTR series stepper motors. - STP-EXT-006**

4.12.2.1. Item| Cable
4.12.2.2. Cable Type | Extension
4.12.2.3. Replacement | No
4.12.2.4. Connection 1 | 4-pin connector
4.12.2.5. Connection 2 | Pigtail

4.12.2.6. Shielded | No
4.12.2.7. Twisted Pair | No
4.12.2.8. Cable Length | 6ft
4.12.2.9. Conductor Size | 20 AWG
4.12.2.10. For Use With | SureStep MTR series stepper motors

4.12.3. **SureStep DC open loop microstepping stepper drive, 4.5A per phase, 2-phase output, 24-48 VDC, bipolar, position mode, 200 to 20000 steps per revolution. - STP-DRV-4845**
4.12.3.1. Item | Stepper drive
4.12.3.2. Stepper Drive Type | Open loop
4.12.3.3. Controller Type | Microstepping
4.12.3.4. Voltage Type | DC
4.12.3.5. Amperage Rating | 4.5A per phase
4.12.3.6. Number of Output Phases | 2
4.12.3.7. Nominal Input Voltage | 24-48 VDC
4.12.3.8. Winding Type Control | Bipolar
4.12.3.9. Output Type | MOSFET, dual H-bridge and 4-quadrant output
4.12.3.10. Current Control | 4-state PWM at 20 kHz
4.12.3.11. Steps per Revolution | 200 to 20000
4.12.3.12. Temperature Rating | 0 to 50 deg C
4.12.3.13. Enclosure Type | Enclosed
4.12.3.14. IP Rating | IP20
4.12.3.15. Mounting | Panel
4.12.3.16. Control Mode | Position
4.12.3.17. Command Signal(s)
4.12.3.17.1. step and direction
4.12.3.17.2. CW/CCW
4.12.3.18. Stall Detection | No
4.12.3.19. Number of Discrete Input Points | 1
4.12.3.20. Discrete Input Type | Sinking/sourcing/line driver (differential)
4.12.3.21. Number of Discrete Output Points | 1
4.12.3.22. Discrete Output Type | Sinking/sourcing
4.12.3.23. Tuning Mode | Pre-tuned per motor
4.12.3.24. Idle Current Reduction | Yes
4.12.3.25. Drive Features | Self-test, anti-resonance (electronic damping) and command signal filtering
4.12.3.26. Protection Type(s)
4.12.3.26.1. overvoltage
4.12.3.26.2. undervoltage
4.12.3.26.3. short circuit
4.12.3.27. Configuration | Rotary dial, dipswitches or jumpers

4.12.4. **RHINO SELECT PSB series switching power supply, 24 VDC @ 5A/120W (adjustable), 120/240 VAC or 120-375 VDC nominal input, 1-phase, enclosed, aluminum housing, 35mm DIN rail mount, removable screw terminal, hazardous location rated. - PSB24-120S**

4.12.4.1. Item | Power supply
4.12.4.2. Series | PSB
4.12.4.3. Power Supply Type | Switching
4.12.4.4. Efficiency | 89% @115 VAC, 90% @230 VAC
4.12.4.5. Output Configuration | Single output
4.12.4.6. Output | 24 VDC @ 5A/120W (adjustable)
4.12.4.7. Output Voltage Range | 22-28 VDC
4.12.4.8. Input voltage range | 85-264 VAC/120-375 VDC
4.12.4.9. Number of Input Phases | 1
4.12.4.10. Protection Type(s)
4.12.4.10.1. overvoltage
4.12.4.10.2. short circuit
4.12.4.10.3. overload
4.12.4.11. Remote On/Off | No
4.12.4.12. Voltage Monitoring | Yes
4.12.4.13. Enclosure Type | Enclosed
4.12.4.14. Housing Material | Aluminum
4.12.4.15. IP Rating | IP20
4.12.4.16. Mounting | 35mm DIN rail
4.12.4.17. Connector Type | Removable screw terminal
4.12.4.18. NEC Class 2 | No
4.12.4.19. Integrated UPS Battery Control | No
4.12.4.20. Operating Temperature | -25 to 80 deg C

4.12.5. **SureStep regen clamp, 50W, 10-80 VDC, 10 ohm, enclosed. For use with DC input stepper and servo drives. - STP-DRVA-RC-050A**

4.12.5.1. Item | Regen clamp
4.12.5.2. Power Rating | 50W
4.12.5.3. Voltage Rating | 10-80 VDC
4.12.5.4. Resistance | 10 ohm
4.12.5.5. Enclosure Type | Enclosed
4.12.5.6. For Use With | DC input stepper and servo drives

4.12.6. **ProSense digital panel meter, panel mount, 1/8 DIN, 14mm 5-digit tri-color (red, green, amber) LED, True RMS AC/DC current or voltage input, 4-20 mA, (2) 8A SPDT relays output, 22-53 VAC/10.5-70 VDC operating voltage. - DPM3-E-A2R-L**

4.12.6.1. Item - Digital panel meter
4.12.6.2. Mounting - Panel
4.12.6.3. Mounting Hole Size - 1/8 DIN
4.12.6.4. Display Type - 14mm 5-digit tri-color (red, green, amber) LED

4.12.6.5. Input True RMS AC/DC current or voltage

4.12.6.6. Input Current Signal Range - 0-200 mA AC True RMS, 0-1A AC True RMS, 0-5A AC True RMS, shunt 0-50 mVAC True RMS, shunt 0-60 mVAC True RMS, shunt 0-100 mVAC True RMS, +/- 200 mA DC, +/- 1A DC, +/- 5A DC, shunt +/- 50 mVDC, shunt +/- 60 mVDC and shunt +/- 100 mVDC

4.12.6.7. Input Voltage Signal Range - 0-2 VAC True RMS, 0-20 VAC True RMS, 0-200 VAC True RMS, 0-600 VAC True RMS, +/- 2 VDC, +/- 20 VDC, +/- 200 VDC and +/- 600 VDC

4.12.6.8. Output 4-20 mA, (2) 8A SPDT relays

4.12.6.9. Operating Voltage - 22-53 VAC/10.5-70 VDC

4.12.6.10. Loop Powered – No

4.12.7. **AutomationDirect LED indicating light, permanent light function, IP65, 22mm, green, 30mm, round, plastic base, 24 VAC/VDC, full voltage. - ECX2052-24L**

4.12.7.1. Item - Indicating light

4.12.7.2. Bulb Type - LED

4.12.7.3. Light Function - Permanent

4.12.7.4. IP Rating - IP65

4.12.7.5. Barrel Size - 22mm

4.12.7.6. Contact Type - Operator only

4.12.7.7. Operator Color - Green

4.12.7.8. Light Color(s) - Green

4.12.7.9. Operator Size - 30mm

4.12.7.10. Operator Shape Round

4.12.7.11. Base Material - Plastic

4.12.7.12. Voltage Rating - 24 VAC/VDC

4.12.7.13. Voltage Regulation - Full voltage

4.12.7.14. Connection - Screw terminal

4.12.8. **AutomationDirect LED indicating light, permanent light function, IP65, 22mm, red, 30mm, round, plastic base, 24 VAC/VDC, full voltage. - ECX2051-24L**

4.12.8.1. Item - Indicating light

4.12.8.2. Bulb Type - LED

4.12.8.3. Light Function Permanent

4.12.8.4. IP Rating - IP65

4.12.8.5. Barrel Size - 22mm

4.12.8.6. Contact Type - Operator only

4.12.8.7. Operator Color - Red

4.12.8.8. Light Color(s) - Red

4.12.8.9. Operator Size - 30mm

4.12.8.10. Operator Shape Round

4.12.8.11. Base Material - Plastic

4.12.8.12. Voltage Rating - 24 VAC/VDC

4.12.8.13. Voltage Regulation - Full voltage

4.12.8.14. Connection - Screw terminal

4.12.9. **AutomationDirect LED indicating light, permanent light function, IP65, 22mm, yellow, 30mm, round, plastic base, 24 VAC/VDC, full voltage. - ECX2053-24L**

4.12.9.1. Item - Indicating light
4.12.9.2. Bulb Type - LED
4.12.9.3. Light Function - Permanent
4.12.9.4. IP Rating - IP65
4.12.9.5. Barrel Size - 22mm
4.12.9.6. Contact Type - Operator only
4.12.9.7. Operator Color - Yellow
4.12.9.8. Light Color(s) - Yellow
4.12.9.9. Operator Size - 30mm
4.12.9.10. Operator Shape Round
4.12.9.11. Base Material - Plastic
4.12.9.12. Voltage Rating - 24 VAC/VDC
4.12.9.13. Voltage Regulation - Full voltage
4.12.9.14. Connection - Screw terminal

4.12.10. **AutomationDirect LED indicating light, permanent light function, IP65, 22mm, white, 30mm, round, plastic base, 24 VAC/VDC, full voltage. - ECX2055-24L**

4.12.10.1. Item - Indicating light
4.12.10.2. Bulb Type - LED
4.12.10.3. Light Function - Permanent
4.12.10.4. IP Rating -IP65
4.12.10.5. Barrel Size - 22mm
4.12.10.6. Contact Type - Operator only
4.12.10.7. Operator Color - White
4.12.10.8. Light Color(s) - White
4.12.10.9. Operator Size - 30mm
4.12.10.10. Operator Shape Round
4.12.10.11. Base Material - Plastic
4.12.10.12. Voltage Rating - 24 VAC/VDC
4.12.10.13. Voltage Regulation - Full voltage
4.12.10.14. Connection - Screw terminal

4.12.11. **AutomationDirect LED indicating light, permanent light function, IP65, 22mm, blue, 30mm, round, plastic base, 24 VAC/VDC, full voltage. - ECX2054-24L**

4.12.11.1. Item - Indicating light
4.12.11.2. Bulb Type - LED
4.12.11.3. Light Function - Permanent
4.12.11.4. IP Rating - IP65
4.12.11.5. Barrel Size - 22mm

4.12.11.6. Contact Type - Operator only
4.12.11.7. Operator Color - Blue
4.12.11.8. Light Color(s) - Blue
4.12.11.9. Operator Size - 30mm
4.12.11.10. Operator Shape Round
4.12.11.11. Base Material - Plastic
4.12.11.12. Voltage Rating - 24 VAC/VDC
4.12.11.13. Voltage Regulation - Full voltage
4.12.11.14. Connection - Screw terminal

4.12.12. **AutomationDirect electric foot switch, single, ABS plastic foot guard(s), yellow, momentary, (2) N.O. and (2) N.C. snap action contacts, ABS plastic operator, safety anti-trip pedal, gray, ABS plastic base. - APS1213-V0**
4.12.12.1. Item - Electric foot switch
4.12.12.2. Foot Switch Type - Single
4.12.12.3. Foot Guard Material - ABS plastic
4.12.12.4. Foot Guard Color - Yellow
4.12.12.5. Action - Momentary
4.12.12.6. Contact Type - (2) N.O. and (2) N.C. snap action contacts
4.12.12.7. Operator Material - ABS plastic
4.12.12.8. Operator Type - Safety anti-trip pedal
4.12.12.9. Operator Color - Gray
4.12.12.10. Base Material - ABS plastic
4.12.12.11. IP Rating - IP65

4.12.13. **AutomationDirect selector switch, 22mm, 3-position, spring return to center, LED illuminated, (2) N.O./(2) N.C. contact(s), metal base, metal bezel, Operator: clear, knob, 30mm, round, plastic, 24 VAC/VDC, full voltage. - GCX1285-24L**
4.12.13.1. Item - Selector switch
4.12.13.2. Barrel Size - 22mm
4.12.13.3. IP Rating - IP65
4.12.13.4. Number Of Positions - 3
4.12.13.5. Action - Spring return to center
4.12.13.6. Bulb Type - LED illuminated
4.12.13.7. Contact Type - (2) N.O./(2) N.C.
4.12.13.8. Base Material - Metal
4.12.13.9. Bezel Material - Metal
4.12.13.10. Operator Color - Clear
4.12.13.11. Operator Type - Knob
4.12.13.12. Operator Size - 30mm
4.12.13.13. Operator Shape Round
4.12.13.14. Operator Material - Plastic
4.12.13.15. Voltage Rating - 24 VAC/VDC

4.12.13.16. Voltage Regulation - Full voltage

4.12.14. **AutomationDirect potentiometer, IP65, 10k ohm, 22mm, black. Legend plate ECX2640 purchased separately. - ECX2300-10K**

4.12.14.1. Item - Potentiometer
4.12.14.2. IP Rating - IP65
4.12.14.3. Resistance - 10k ohm
4.12.14.4. Size - 22mm
4.12.14.5. Color – Black

4.12.15. **AutomationDirect pushbutton, IP65, 22mm, momentary, LED illuminated, (1) N.O. contact(s), metal base, metal bezel, plastic ring, Operator: yellow, flush, 30mm, round, plastic, 24 VAC/VDC, full voltage. - GCX1203-24L**

4.12.15.1. Item - Pushbutton
4.12.15.2. IP Rating - IP65
4.12.15.3. Barrel Size - 22mm
4.12.15.4. Action - Momentary
4.12.15.5. Bulb Type - LED illuminated
4.12.15.6. Contact Type - (1) N.O.
4.12.15.7. Base Material - Metal
4.12.15.8. Bezel Material - Metal
4.12.15.9. Operator Protection - Plastic ring
4.12.15.10. Operator Color - Yellow
4.12.15.11. Operator Type - Flush
4.12.15.12. Operator Size - 30mm
4.12.15.13. Operator Shape Round
4.12.15.14. Operator Material - Plastic
4.12.15.15. Voltage Rating - 24 VAC/VDC
4.12.15.16. Voltage Regulation - Full voltage

4.12.16. **AutomationDirect pushbutton, IP65, 22mm, momentary, LED illuminated, (1) N.O. contact(s), metal base, metal bezel, plastic ring, Operator: clear, flush, 30mm, round, plastic, 24 VAC/VDC, full voltage. - GCX1205-24L**

4.12.16.1. Item - Pushbutton
4.12.16.2. IP Rating - IP65
4.12.16.3. Barrel Size - 22mm
4.12.16.4. Action - Momentary
4.12.16.5. Bulb Type - LED illuminated
4.12.16.6. Contact Type - (1) N.O.
4.12.16.7. Base Material - Metal
4.12.16.8. Bezel Material - Metal
4.12.16.9. Operator Protection - Plastic ring
4.12.16.10. Operator Color - Clear

4.12.16.11. Operator Type - Flush
4.12.16.12. Operator Size - 30mm
4.12.16.13. Operator Shape Round
4.12.16.14. Operator Material - Plastic
4.12.16.15. Voltage Rating - 24 VAC/VDC
4.12.16.16. Voltage Regulation - Full voltage

4.12.17. **AutomationDirect pushbutton, IP65, 22mm, momentary, LED illuminated, (1) N.O. contact(s), metal base, metal bezel, plastic ring, Operator: blue, flush, 30mm, round, plastic, 24 VAC/VDC, full voltage. - GCX1204-24L**
4.12.17.1. Item - Pushbutton
4.12.17.2. IP Rating - IP65
4.12.17.3. Barrel Size - 22mm
4.12.17.4. Action - Momentary
4.12.17.5. Bulb Type - LED illuminated
4.12.17.6. Contact Type - (1) N.O.
4.12.17.7. Base Material - Metal
4.12.17.8. Bezel Material - Metal
4.12.17.9. Operator Protection - Plastic ring
4.12.17.10. Operator Color - Blue
4.12.17.11. Operator Type - Flush
4.12.17.12. Operator Size - 30mm
4.12.17.13. Operator Shape Round
4.12.17.14. Operator Material - Plastic
4.12.17.15. Voltage Rating - 24 VAC/VDC
4.12.17.16. Voltage Regulation - Full voltage

4.12.18. **AutomationDirect pushbutton, IP65, 22mm, momentary, LED illuminated, (1) N.O. contact(s), metal base, metal bezel, plastic ring, Operator: green, flush, 30mm, round, plastic, 24 VAC/VDC, full voltage. - GCX1202-24L**
4.12.18.1. Item - Pushbutton
4.12.18.2. IP Rating - IP65
4.12.18.3. Barrel Size - 22mm
4.12.18.4. Action - Momentary
4.12.18.5. Bulb Type - LED illuminated
4.12.18.6. Contact Type - (1) N.O.
4.12.18.7. Base Material - Metal
4.12.18.8. Bezel Material - Metal
4.12.18.9. Operator Protection - Plastic ring
4.12.18.10. Operator Color - Green
4.12.18.11. Operator Type - Flush
4.12.18.12. Operator Size - 30mm
4.12.18.13. Operator Shape Round

4.12.18.14. Operator Material - Plastic
4.12.18.15. Voltage Rating - 24 VAC/VDC
4.12.18.16. Voltage Regulation - Full voltage

4.12.19. **AutomationDirect pushbutton, IP65, 22mm, momentary, LED illuminated, (1) N.C. contact(s), metal base, metal bezel, plastic ring, Operator: red, flush, 30mm, round, plastic, 24 VAC/VDC, full voltage. - GCX1201-24L**
4.12.19.1. Item - Pushbutton
4.12.19.2. IP Rating - IP65
4.12.19.3. Barrel Size - 22mm
4.12.19.4. Action - Momentary
4.12.19.5. Bulb Type - LED illuminated
4.12.19.6. Contact Type - (1) N.C.
4.12.19.7. Base Material - Metal
4.12.19.8. Bezel Material - Metal
4.12.19.9. Operator Protection - Plastic ring
4.12.19.10. Operator Color - Red
4.12.19.11. Operator Type - Flush
4.12.19.12. Operator Size - 30mm
4.12.19.13. Operator Shape Round
4.12.19.14. Operator Material - Plastic
4.12.19.15. Voltage Rating - 24 VAC/VDC
4.12.19.16. Voltage Regulation - Full voltage

4.12.20. **Hammond pushbutton consolet, 16 holes, 22mm, NEMA 12/13, 7 x 20 x 7in (HxWxD), desktop or pedestal mount, carbon steel, ANSI 61 gray, powder coat finish, hinged screw cover. - 1490MG16**
4.12.20.1. Item - Pushbutton consolet
4.12.20.2. Number of Pushbutton Holes - 16 holes
4.12.20.3. Pushbutton Hole Nominal Size - 22mm
4.12.20.4. Slope Top - No
4.12.20.5. NEMA Rating - 12/13
4.12.20.6. IP Rating - IP54
4.12.20.7. Nominal Enclosure Dimensions - 7 x 20 x 7in (HxWxD)
4.12.20.8. Enclosure Height - 6.78in
4.12.20.9. Enclosure Width - 20.06in
4.12.20.10. Enclosure Depth - 6.94in
4.12.20.11. Mounting - Desktop or pedestal
4.12.20.12. Integral Mounting Feet - Yes
4.12.20.13. Integral Mounting Flange - No
4.12.20.14. Dual Access - No
4.12.20.15. Knockouts - No
4.12.20.16. Material - Carbon steel

4.12.20.17. Color - ANSI 61 gray
4.12.20.18. Finish - Powder coat
4.12.20.19. Cover Type - Hinged screw cover
4.12.20.20. Hinge Type - Internal lift-off hinge
4.12.20.21. Number of Hinges Per Door - 2
4.12.20.22. Padlockable - No
4.12.20.23. Keylocking - No

4.12.21. **ZIPLink feedthrough communication module, 26-position terminal block to 25-pin D-sub male/female, DIN rail mount. - ZL-RTB-DB25**
4.12.21.1. Item - Feedthrough communication module
4.12.21.2. Device Connection - 26-position terminal block
4.12.21.3. ZIPLink Connection - 25-pin D-sub male/female
4.12.21.4. Mounting - DIN rail

4.12.22. **Bimed cable gland, M20 x 1.5mm thread type, nickel-plated brass, accepts 6 to 12mm diameter cable, IP68. Package of 5. Mounting hardware included. - BMBCX-E2**
4.12.22.1. Item - Cable gland
4.12.22.2. Thread Type - M20 x 1.5mm
4.12.22.3. Material - Nickel-plated brass
4.12.22.4. Cable OD Range6 to 12mm
4.12.22.5. IP Rating - IP68
4.12.22.6. Strain Relief - No
4.12.22.7. Quantity per Pack - 5
4.12.22.8. Includes - Mounting hardware

4.12.23. **Bimed cable gland, M20 x 1.5mm thread type, polyamide, black, accepts 6 to 12mm diameter cable, IP68. Package of 5. Mounting hardware included. - BM-ENX-22-W**
4.12.23.1. Item - Cable gland
4.12.23.2. Thread Type - M20 x 1.5mm
4.12.23.3. Material - Polyamide
4.12.23.4. Color - Black
4.12.23.5. Cable OD Range - 6 to 12mm
4.12.23.6. IP Rating - IP68
4.12.23.7. Strain Relief - No
4.12.23.8. Quantity per Pack - 5
4.12.23.9. Includes - Mounting hardware

4.12.24. **Murrplastik KDL/D series cable entry system frame, polypropylene frame, TPE grommet block, 24-pin frame, black, (6) small and (2) medium opening(s), UL Type 1, 12 and 4X indoor use only, IP65. – 568325**
4.12.24.1. Item - Cable entry system frame
4.12.24.2. Series - KDL/D

4.12.24.3. Application - General purpose
4.12.24.4. Frame Material - Polypropylene
4.12.24.5. Grommet Block Material - TPE
4.12.24.6. Frame Size - 24-pin
4.12.24.7. Color - Black
4.12.24.8. Number of Openings
4.12.24.8.1. (6) small
4.12.24.8.2. (2) medium
4.12.24.9. IP Rating - IP65
4.12.24.10. UL Type1, 12 and 4X indoor use only
4.12.24.11. Requires - (6) Murrplastik KDT/X series small grommets and (2) medium grommets

4.12.25. **Captron Caneo Series10 Stainless Steel capacitive pushbutton sensor switch, IP69K, 22mm, static, stainless steel bezel, manual LED control, Operator: white, 30mm. Requires 5-pin female M12 cable. - CS10SMTDT-C20-0456**
4.12.25.1. Item - Capacitive pushbutton sensor switch
4.12.25.2. Series - Caneo Series10 Stainless Steel
4.12.25.3. IP Rating - IP69K
4.12.25.4. Barrel Size - 22mm
4.12.25.5. Action - Static
4.12.25.6. Bulb Type - LED illuminated
4.12.25.7. Output PNP - N.O.
4.12.25.8. Contact Type - (1) N.O.
4.12.25.9. Light Color(s) - Green/red
4.12.25.10. LED Control - Manual
4.12.25.11. Base Material - Stainless steel
4.12.25.12. Bezel Material - Stainless steel
4.12.25.13. Bezel Color - Silver
4.12.25.14. Operator Color - White
4.12.25.15. Operator Type - Flush
4.12.25.16. Operator Size - 30mm
4.12.25.17. Operator Shape Round
4.12.25.18. Operator Material - Polycarbonate
4.12.25.19. Voltage Rating - 24 VDC
4.12.25.20. Voltage Regulation - Full voltage
4.12.25.21. Communication Port and Connection Type(s)
4.12.25.21.1. (1) 4-pin M12 A-coded (IO-Link)
4.12.25.22. Port Protocol(s)
4.12.25.22.1. IO-Link Class A Device
4.12.25.23. Port Speed(s)
4.12.25.23.1. IO-Link COM2
4.12.25.23.2. IO-Link Version - IO-Link v1.1
4.12.25.24. Standard I/O Mode Supported - Yes

4.12.25.25. Requires - 5-pin female M12 cable

4.12.26. **Captron Caneo Series10 Stainless Steel capacitive pushbutton sensor switch, IP69K, 22mm, dynamic, stainless steel bezel, manual LED control, Operator: white, 30mm. Requires 5-pin female M12 cable. - CS10SMTDT-C20-0454**

4.12.26.1. Item - Capacitive pushbutton sensor switch
4.12.26.2. Series - Caneo Series10 Stainless Steel
4.12.26.3. IP Rating - IP69K
4.12.26.4. Barrel Size - 22mm
4.12.26.5. Action - Dynamic
4.12.26.6. Bulb Type - LED illuminated
4.12.26.7. Output PNP, N.O.
4.12.26.8. Contact Type - (1) N.O.
4.12.26.9. Light Color(s) - Green/red
4.12.26.10. LED Control - Manual
4.12.26.11. Base Material - Stainless steel
4.12.26.12. Bezel Material - Stainless steel
4.12.26.13. Bezel Color - Silver
4.12.26.14. Operator Color - White
4.12.26.15. Operator Type - Flush
4.12.26.16. Operator Size - 30mm
4.12.26.17. Operator Shape Round
4.12.26.18. Operator Material - Polycarbonate
4.12.26.19. Voltage Rating - 24 VDC
4.12.26.20. Voltage Regulation - Full voltage
4.12.26.21. Communication Port and Connection Type(s)
4.12.26.21.1. (1) 4-pin M12 A-coded (IO-Link)
4.12.26.22. Port Protocol(s)
4.12.26.22.1. IO-Link Class A Device
4.12.26.23. Port Speed(s)
4.12.26.23.1. IO-Link COM2
4.12.26.23.2. IO-Link Version IO-Link v1.1
4.12.26.24. Standard I/O Mode Supported - Yes
4.12.26.25. Requires - 5-pin female M12 cable

4.12.27. **Murrelektronik connection cable, M12 axial female to pigtail, 5-pole, PVC jacket, gray, 9.8ft/3m cable length, IP67. - 7000-12241-2150300**

4.12.27.1. Item - Cable
4.12.27.2. Cable Type - Connection
4.12.27.3. Connection 1 - M12 axial female
4.12.27.4. Connection 2 - Pigtail
4.12.27.5. Number of Poles - 5
4.12.27.6. Jacket Material - PVC

4.12.27.7. Jacket Color - Gray

4.12.27.8. Cable Length - 9.8ft/3m

4.12.27.9. IP Rating - IP67

APPENDIX A: SIGNATURE BLOCK

Signature Block

Please return this page with each copy of your submittal.

The undersigned, an authorized agent of his/her company, hereby certifies:

( ) They have reviewed and understands all terms, conditions, and specifications herein stated.

( ) Bidder has reviewed and understands section 8.7 Public Records.

( ) The Bidder is qualified to perform work and services as included.

( ) The pricing contained in the Bid is valid for 120 days from submittal.

( ) Bidder has reviewed and accepts the CWI Contract Terms in Appendix B

Signature

Name and Title

Company Name

Address, City, State, Zip Code

Phone Number and Email

Federal Tax ID Number

Date of Submission

APPENDIX B: SAMPLE CONTRACT

Contract Terms

THIS CONTRACT for the purchase of personal property ("Contract"), dated , is between the College of Western Idaho ("College") and _____("Contractor"). College and Contractor may also be referred to as "Party" or "Parties" within Contract.

RECITALS

College requires an individual or entity to provide CWI with specified personal property to CWI for specific classroom instruction

The parties agree that Contractor will provide College with such personal property.

The parties agree to set forth the terms and conditions of their agreement in this Contract.

Terms and Conditions of Contract

The resultant contract ("Contract") will constitute the College's acceptance of the signed and dated proposal in response to the Invitation to Bid 01-2025 Mechatronics Equipment. The ITB and its Appendices and any amendments, and the Responding Bid submitted by the successful Bidder will be incorporated into and become the contract. The following terms and conditions will be incorporated. By submitting an offer the Bidder warrants they have reviewed these terms and conditions and by them upon any acceptance of a Bid by the College of Western Idaho:

1. Governing Law/Jurisdiction

The contract resulting from this ITB solicitation shall be governed in all respects (validity, construction, capacity, performance) by the laws of the State of Idaho or applicable federal laws. The venue or jurisdiction of any claim arising from this contract shall be in the federal and/or district courts located in Ada County, Idaho.

2. Compliance with Laws

Bidder shall agree to fully cooperate with any audit or investigation, and comply with all requirements of federal, state and local laws and regulations applicable to firm, firm's service or to the property provided by firm pursuant to this agreement.

Verification:

Bidder's obligations under this section include the verification process under Idaho Code Section 67-7903 requiring documentation of lawful presence for all employees.

Anti-Discrimination:

Acceptance of this agreement binds the Bidder to the terms and conditions of Section 601, Title VI, Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973 Title IX of the Education Amendments of 1972, and the Americans with Disabilities Act of 1990, are also incorporated into this agreement. The Bidder shall comply with pertinent amendments to such laws made during the term of the agreement and with all federal and state rules and regulations implementing such laws. The Bidder must include this provision in every subcontract relating to this agreement.

FERPA:

The privacy of student record information is protected under the federal Family Educational Rights and Privacy Act (FERPA), 20 U.S.C. Section 1232g. If at any time during the course of activities under this agreement, the Bidder is

provided access to individual student information, or to a system that contains individual student information, the Bidder agrees to maintain that information in absolute confidence and in compliance with FERPA, and agrees not to use or disclose that information or create or maintain copies of that information for any purpose not directly related to and expressly authorized under this agreement.

Bidder certifies they are not currently owned or operated by the government of China and will not for the duration of the contract be owned or operated by the government of China in accordance with I.C. § 67-2359.

Certification Concerning Boycott of Israel. Pursuant to Idaho Code 67-2346, if payments under this Contract exceed one hundred thousand dollars ($100,000) and Contractor employs ten (10) or more persons, Contractor certifies that it is not currently engaged in, and will not for the duration of the Contract engage in, a boycott of goods or services from Israel or territories under its control. The terms in this section are defined in Idaho Code 67-2346.

PROHIBITION ON CONTRACTS WITH COMPANIES BOYCOTTING CERTAIN SECTORS. Contractor warrants and represents that it is not currently engaged in, and will not for the duration of the Agreement engage in, a boycott of any individual or company because the individual or company:

(a) Engages in or supports the exploration, production, utilization, transportation, sale, or manufacture of fossil fuel-based energy, timber, minerals, hydroelectric power, nuclear energy, or agriculture; or

(b) Engages in or supports the manufacture, distribution, sale, or use of firearms, as defined in section 18-3302(2)(d), Idaho Code.

3. Confidential Information

Bidder and its employees agree to maintain the confidentiality of any sensitive or personal data relating to the College. Bidder and its employees may be privy to financial, personnel or other information that the College regards as proprietary or confidential. The Bidder shall not disclose such confidential information to any third party without the express consent of the College.

“Confidential Information” includes (but is not limited to):

1. Personnel records, personal information that is non-public, health records, professional discipline records.
2. Trade secrets, information protected by copyright laws, patents or pending patent applications, production records.
3. Proprietary information both financial and technical, appraisals, Bids, promotional marketing.

Confidential Information does not include records maintained by College that are determined in the sole discretion of College that are public records as defined in Idaho Code 74-102, including this Contract and other communication between College and Contractor.

4. Standard of Performance

The parties acknowledge that the College in selecting the Bidder to perform the services of this ITB and is relying upon the Bidder's reputation for excellence in the performance of the services required hereunder. The Bidder shall be responsible for the professional quality and technical accuracy of their advice and other services furnished by them. The Bidder shall perform services with the degree of skill that is normally exercised by recognized

professionals and with the standard of care with respect to services of a similar nature. The rights of the College provided for under this contract are in addition to any rights and remedies provided by law.

The Bidder shall devote such time to performance of its duties under this contract as is reasonably necessary for the satisfactory performance of such duties. Nothing in the foregoing shall be construed to alter the requirement that time is of the essence in this contract. Contractor shall provide delivery of personal property FOB Destination.

6. Independent Contractor Status

It is understood and agreed that in the performance of the services under this contract, Parties shall at all times act as independent contractors with respect to each other. Nothing herein shall be construed to create a joint venture or partnership between the parties hereto or an employee/employer relationship. Parties shall act as independent contractors pursuant to this agreement. Neither party hereto shall have any express or implied right or authority to assume or create any obligations on behalf of or in the name of the other party or to bind the other party to any contract, agreement or undertaking with any third party.

Bidder shall supply, at its sole expense, all equipment, tools, materials and/or supplies to accomplish the work performed. The College shall not be responsible for providing worker's compensation coverage for firm nor shall the Bidder be entitled to any benefits including but not limited to vacation pay, sick leave, PERSI, retirement benefits, health, life, dental, disability and unemployment insurance benefits.

7. Indemnification

To the extent permitted by law, the Contractorr shall defend, indemnify and hold harmless the College its officers, board members, agents and employees from any and all claims, damages, costs, expenses, and actions, including reasonable attorney fees, caused by or that arise from the breach of this agreement by the Contrator , or wrongful acts or omissions of the Contractor, its employees, agents, or subcontractors under this contract that cause death or injury or damage to property, or arising out of Bidder's failure to comply with any state or federal statute, law, regulation or act.

8. Dispute Resolution

Before commencing litigation, each party agrees to notify the other party of any dispute arising out of or relating to this contract, and to attempt to resolve any such dispute by negotiation. If the Parties are unable to resolve the dispute in thirty (30) days of such notice, the Parties agree to endeavor to resolve the dispute through mediation. Parties agree that disputes will first be submitted to mediation by written notice to the other party. In mediation, the parties will work in good faith to resolve any differences with the aid of a mediator. The mediator will be selected by mutual agreement, but if an agreement as to the selection cannot be reached, one shall be designated by the American Arbitration Association. The mediator shall determine the conduct and the format of the mediation. Each party will bear its own costs in mediation. All other fees and expenses shall be divided equally between the

parties. Either party may initiate litigation within the State or federal courts located within the state of Idaho to resolve the dispute if it is not resolved by negotiation or mediation.

9. Force Majeure

Neither party shall be liable or deemed to be in default for any Force Majeure delay in shipment or performance occasioned by unforeseeable causes beyond the control and without the fault or negligence of the parties, including, but not restricted to, acts of God or the public enemy, fires, floods, epidemics, quarantine, restrictions, strikes, freight embargoes, unusually severe weather, provided that in all cases the parties shall notify the other

promptly in writing of any cause for delay. If reasonably possible, the firm shall make every reasonable effort to complete performance as soon as possible.

10. Terms of Payment

Terms of payment will be negotiated for the final contract. Invoices will be submitted separately to the College on a monthly basis which clearly delineates what services are being billed for during the period. Each invoice shall include the date the service was rendered and a description of the service provided. Invoices will be paid by the College on a net thirty (30) payment basis.

11. Assignment of Rights

Neither party may assign, transfer or delegate any or all its rights or obligations under this contract, without the prior written consent of the other party, which consent shall not be unreasonably withheld or delayed. No assignment shall relieve the assigning party of any of its obligations hereunder. Any attempted assignment, transfer or other conveyance in violation of the foregoing shall be null and void. This contract shall be binding upon and shall inure to the benefit of the parties hereto and their respective successors and permitted assigns.

12. Incorporation by Reference

The following documents are hereby made part of this agreement and incorporated herein by reference:

1. CWI's ITB 01-2025 Mechatronics Equipment
2. Related Addendums or Amendments to ITB 01-2025 Mechatronics Equipment
3. Selected Response Bid to ITB 01-2025 Mechatronics Equipment

In the event of any conflict between the terms and provisions of this contract and those of any other incorporated documents, the following order of precedence shall govern:

Federal Law and Regulations
Idaho State Law
CWI's ITB 01-2025 Mechatronics Equipment
Related Service Addendums and/or Amendments to 01-2025 Mechatronics Equipment
Selected Response Bid

13. Non-Waiver

The failure of either party to exercise any of its rights under this agreement for a breach thereof shall not be deemed to be a waiver of such rights, nor shall the same be deemed to be a waiver of any subsequent breach, either of the same provision or otherwise.

14. Amendments

This contract may only be amended, modified, or supplemented by an agreement in writing signed by each party hereto. No waiver by any party of any of the provisions hereof shall be effective unless explicitly set forth in writing and signed by the party so waiving.

15. Termination

Pursuant to Idaho Code and College policy, the College may enter into contracts, including leases and rentals, for periods of time exceeding one (1) year provided that such contracts contain no penalty to or restriction upon the College in the event cancellation is necessitated by a lack of financing for any such contract or contracts. The College reserves the right to terminate this contract without penalty if, in its sole judgment, the College of Western Idaho Board of Trustees fails, neglects, or refuses to appropriate sufficient funds as may be required for the College to continue such payments, or requires any return or "give-back" of funds required for the College to

continue payments. CWI will be required to pay for all material delivered prior to the contractor being notified of contract termination.

Termination for Convenience:
The College or the Bidder may terminate this contract upon 120 calendar days' advanced written notice. In the event of termination, Bidder will advise the College of the extent to which performance has been completed and deliver any work in progress. Bidder will be paid for all work performed and expenses incurred through the date of termination.

Termination for Breach:
The Parties may terminate the contract (and/or any order issued pursuant to the contract) when the breaching Party has been provided written notice of default or non-compliance and has failed to cure the default or noncompliance within a reasonable time, not to exceed thirty (30) calendar days. The Parties, upon termination for default or non-compliance, reserves the right to take any legal action they may deem necessary including, without limitation to offset damages against any payment due.

16. Contractor's Signature

An authorized signature is required in Appendix A for a Bid to be considered eligible. A representative of the Vendor's signature on the face of this solicitation certifies that this Bid is made without prior understanding, contract, or connection with any corporation, firm or person submitting a Bid for the same services and is in all respects fair and without collusion or fraud. Vendor agrees to abide by all conditions of this solicitation and certifies that the signatory is authorized to sign this Bid for the Vendor.

APPENDIX C: INSURANCE REQUIREMENTS

Insurance Requirements

GENERAL REQUIREMENTS

Vendor shall provide evidence of insurance coverage as set out in this Appendix. The intent of the required insurance is to protect the College should there be any claims, suits, actions, costs or damages arising from the any negligent or intentional act or omission of the firm or its agents while performing under the terms of this contract.

Before the start of the contract, the Vendor shall provide evidence of such coverage as set out in this Appendix. All insurance provided shall be issued by companies admitted to do business within the state of Idaho. The College will be provided notice thirty (30) days written notice of any cancellation, non-renewal or material changes to the insurance provided.

Failure on the part of the Vendor to procure and maintain required insurance shall constitute a material breach of contract upon which the College may immediately terminate this agreement.

GENERAL LIABILITY INSURANCE

Contractor shall, at its sole cost and expense, procure and maintain through the term of this Agreement, Commercial General Liability Insurance with limits not less than one million dollars ($1,000,000) annually and three million dollars ($3,000,000) in the aggregate.

PROFESSIONAL LIABLITY

Vendor shall maintain Professional Liability (Errors & Omissions) insurance on a claim made basis, covering claims made during the policy period and reported within three (3) years of the date of occurrence. Limits of liability shall be not less than one million dollars ($1,000,000). All insurers shall have a Best's rating of A- or better and be licensed and admitted in Idaho.

WORKER'S COMPENSATION

Vendor shall maintain Worker's Compensation coverage that meets statutory limits and as required by law.

APPENDIX D: CONFLICT OF INTEREST/DISBARMENT

CONFLICT OF INTEREST

No employee of College of Western Idaho (or close relative), with the exception of the person(s) identified below, has a direct or indirect financial interest in the Offeror or in the proposed transaction. Offeror neither employs, nor is negotiating to employ, any College of Western Idaho employee, Board of Trustee member or close relative, with the exception of the person(s) identified below. Offeror did not participate, directly or indirectly, in the preparation of specifications upon which the ITB or offer is made.

List in the comments section below the name(s) of any College of Western Idaho employee, Board of Trustee member or close relative who now or within the preceding 12 months: (1) works for the Offeror; (2) has an ownership interest in the Offeror (other than an owner of less than 1% of Offeror's stock, if Offeror is a publicly traded corporation); (3) is a partner, officer, director, trustee or consultant to the Offeror; (4) has received grant, travel, honoraria or other similar support from Offeror; or (5) has a right to receive royalties from the Offeror.

DEBARMENT/SUSPENSION STATUS

The Offeror certifies that it is not suspended, debarred or ineligible from entering into contracts with the Executive Branch of the Federal Government, or in receipt of a notice or proposed debarment from any Agency. The Offeror agrees to provide immediate notice to the College of Western Idaho's Vice President of Finance in the event of being suspended, debarred or declared ineligible by any department or federal agency, or upon receipt of a notice of proposed debarment that is received after the submission of the ITB or offer but prior to the award of the purchase order or contract.

CERTIFICATION

The undersigned hereby certifies that he/she has read the above CONFLICT OF INTEREST and DEBARMENT/SUSPENSION Status requirements and that he/she understands and will comply with these requirements. The undersigned further certifies that they have the authority to certify compliance for the Offeror named and that the information contained in this document is true and accurate to the best of their knowledge.

Comments:

_____

Signature

Name and Title

Company Name

Address

Date