UNIVERSIDAD TECNOLÓGICA DE PEREIRA

INVITACIÓN PÚBLICA BS 09 DE 2026

"COMPRA DE MATERIALES Y EQUIPOS DE LABORATORIO"

EVALUACIÓN TECNICA ANEXO 2 MODIFICADO COMPRA DE EQUIPOS DE LABORATORIO PARA INGENIERÍA ELECTRÓNICA

EVALUACIÓN TECNICA ANEXO 2 MODIFICADO COMPRA DE EQUIPOS DE LABORATORIO PARA INGENIERÍA ELECTRÓNICA

ÍTEM	NOMBREL DEL ELEMENTO	DESCRIPCIÓN ESPECIFICACIONES
1	Gw Instek Gpe-4323 Bench Psu 0-32v 0-3a 4 Outputs 212w.Digital Panel Control	Bench Linear DC Power Supply – 4 Output Channels Linear DC bench power supply designed for electronic testing, development, and maintenance applications. The equipment shall include a digital front panel control that allows precise adjustment and clear visualization of electrical parameters. The system shall provide four (4) independent output channels, with adjustable voltage and current regulation. The main channels must support independent operation as well as automatic series and parallel tracking modes, allowing expanded output capability when higher voltage or higher current is required. The unit shall incorporate a digital display for simultaneous voltage and current monitoring, fine adjustment controls, and a key lock function to prevent accidental modification of parameters during testing. Additionally, the device must include illuminated output status indicators to clearly show when the outputs are active. In combined operation modes, the main channels shall support configurations equivalent to approximately 64 V / 3 A in series connection or 32 V / 6 A in parallel connection, maintaining stable and regulated output suitable for laboratory applications. Minimum Required Specifications: Type: Linear DC bench power supply Number of outputs: 4 channels Main adjustable channels: Voltage range: 0 to 32 V DC Current range: 0 to 3 A per channel Total power: ≥ 200 W Operating modes: Independent operation Automatic series/parallel tracking Display: digital display for voltage and current Control: digital front panel control Key lock function for configuration protection Output status indicator lights Protection: overcurrent protection and safe operation for devices under test Input power requirement: 110 V AC ±10%, 60 Hz Designed for laboratory, test bench, or electronic maintenance use
2	Gw Instek Gds-1102b.Memoria Interna Flash De 32 Mb	Digital storage oscilloscope designed for measurement, analysis, and diagnostics of electronic signals in laboratories, training centers, and technical maintenance environments. The equipment shall provide high signal visualization, capture, and analysis capabilities, allowing intuitive operation through front panel controls and integrated on-screen help functions. The instrument shall include two (2) analog input channels with a minimum bandwidth of 100 MHz, enabling accurate signal analysis for electronics and telecommunications applications. The system shall incorporate digital visual persistence technology, allowing waveform display using up to 256 color intensity levels, facilitating identification of signal variations and providing a visualization experience similar to that of an analog oscilloscope. The unit shall provide a sampling rate of up to 1 GS/s, with a record length of at least 10 million points per channel, allowing detailed capture of complex signals. Additionally, it shall be capable of capturing up to 50,000 waveforms per second, enabling efficient analysis of transient events. The instrument shall include internal Flash memory of at least 32 MB for storing waveforms, configurations, and measurement data. For frequency-domain analysis, the equipment shall include Fast Fourier Transform (FFT) functionality with a processing capacity of at least 1 million points, allowing spectral analysis of captured signals. The user interface shall include dedicated keys for quick reset of horizontal time base, vertical voltage scale, and trigger settings, as well as advanced waveform control functions such as zoom, play, and pause for detailed analysis of captured signals. The device shall feature a color display of at least 7 inches, TFT-LCD type, with a minimum resolution of 800 × 480 (WVGA), as well as an integrated on-screen help system to facilitate operation. Additionally, the oscilloscope shall incorporate an integrated digital voltmeter function and multiple automatic measurement functions, providing at least 36 preset measurement parameters. The design shall be compact and optimized for bench-top laboratory use, minimizing the required workspace. The system shall allow connection to a computer via USB interface, including compatibility with software for data capture, storage, transfer, and analysis, as well as support for virtual instrumentation control drivers. The equipment shall support an automatic Go/No-Go testing function through a standard BNC signal interface, enabling rapid signal validation against defined parameters. Minimum Required Specifications: Type: Digital Storage Oscilloscope (DSO) with visual persistence Number of channels: 2 analog channels Minimum bandwidth: 100 MHz Sampling rate: up to 1 GS/s Record length: ≥ 10 Mpts per channel Waveform capture rate: up to 50,000 waveforms per second Vertical sensitivity: 1 mV/div to 10 V/div Display: 7-inch color TFT-LCD, minimum resolution 800 × 480 (WVGA) Display technology with digital persistence and up to 256 color intensity levels Internal memory: ≥ 32 MB Flash FFT analysis capability with ≥ 1 Mpts Go/No-Go signal testing function Integrated digital voltmeter function ≥ 36 automatic measurement functions Display functions: Zoom, waveform playback, and pause Integrated on-screen help system Connectivity: USB interface for PC connection Compatibility with data acquisition and analysis software and virtual instrumentation drivers Signal input connectors: BNC type Compact bench-top design Power input: 110 V AC, 60 Hz
3	Afg-2225 Dual-Channel Arbitrary Function Generato	Dual-channel arbitrary function generator designed for signal generation, simulation, and analysis in electronic laboratories, research environments, product development, and educational applications. The instrument shall provide accurate and stable signal generation with multiple waveform capabilities. The equipment shall include two (2) independent output channels, both with identical characteristics, enabling dual-signal applications such as differential signaling or IQ modulation, as well as other electronic and communication testing applications. Each channel shall provide an output amplitude of up to 10 Vpp, with a minimum frequency bandwidth of 25 MHz and a frequency resolution of up to 1 µHz, allowing precise control of the generated signal. The instrument shall include built-in standard waveforms, including sine, square, ramp (triangle), and noise, as well as the capability to generate user-defined arbitrary waveforms. The system shall allow users to edit multiple predefined waveforms or create entirely new custom waveforms for specific applications. The square waveform shall allow an adjustable duty cycle approximately from 1% to 99%, enabling its use as a pulse signal source for various testing applications. The generator shall incorporate several signal modulation capabilities, including Amplitude Modulation (AM), Frequency Modulation (FM), Phase Modulation (PM), Frequency Shift Keying (FSK), and signal summation (SUM). Additionally, it shall include frequency sweep, burst mode, and an integrated frequency counter, expanding its usability in communication and signal analysis applications. The instrument shall feature a color display of at least 3.5 inches (LCD), capable of clearly presenting operating parameters and the generated output waveform in real time. The user interface shall be intuitive and allow quick configuration of signal parameters. The instrument shall include USB Host and USB Device interfaces, enabling connection to computers and other devices for waveform transfer, data management, and instrument control. Minimum Required Specifications: Type: Arbitrary Function Generator Number of channels: 2 independent output channels Frequency bandwidth: ≥ 25 MHz Frequency resolution: up to 1 µHz Output amplitude: up to 10 Vpp Standard waveforms: sine, square, triangle (ramp), and noise Capability to generate user-defined arbitrary waveforms Ability to edit multiple predefined waveforms Adjustable duty cycle for square waveform: approximately 1% – 99% Built-in modulation types: AM, FM, PM, FSK, and SUM Additional functions: Sweep, Burst, and integrated frequency counter Display: minimum 3.5-inch color LCD Real-time waveform and parameter display Communication interfaces: USB Host and USB Device Compact bench-top design suitable for laboratory use Power input: 110 V AC, 60 Hz
VALOR TOTAL OFERTA		

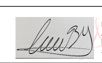
IMPOINTER SAS

ÍTEM	MARCA	UNIDAD DE MEDIDA	CANTIDAD	DESCRIPCION MARCA/ REFERENCIA/ESPECIFICACIONES OFERTADAS	VALOR UNITARIO ANTES DE IVA	PORCENTAJE IVA (%)	VALOR IVA	VALOR UNITARIO IVA INCLUIDO	TOTAL IVA INCLUIDO	TIEMPO DE ENTREGA (Días Calendario)	TIEMPO DE GARANTIA	EVALUACION TECNICA -Cumple/ No cumple
1		Unidad	2	2 Gw Instek Gpe-4323 Bench Psu 0-32v 0-3a 4 Outputs 212w.Digital Panel ControlBench Linear DC Power Supply – 4 Output ChannelsLinear DC bench power supply designed for electronic testing, development, and maintenance applications. The equipment shall include a digital front panel control that allows precise adjustment and clear visualization of electrical parameters.The system shall provide four (4) independent output channels, with adjustable voltage and current regulation. The main channels must support independent operation as well as automatic series and parallel tracking modes, allowing expanded output capability when higher voltage or higher current is required.The unit shall incorporate a digital display for simultaneous voltage and current monitoring, fine adjustment controls, and a key lock function to prevent accidental modification of parameters during testing. Additionally, the device must include illuminated output status indicators to clearly show when the outputs are active.In combined operation modes, the main channels shall support configurations equivalent to approximately 64 V / 3 A in series connection or 32 V / 6 A in parallel connection, maintaining stable and regulated output suitable for laboratory applications.Minimum Required Specifications:Type: Linear DC bench power supplyNumber of outputs: 4 channelsMain adjustable channels:Voltage range: 0 to 32 V DCCurrent range: 0 to 3 A per channelTotal power: ≥ 200 WOperating modes:Independent operationAutomatic series/parallel trackingDisplay: digital display for voltage and currentControl: digital front panel controlKey lock function for configuration protectionOutput status indicator lightsProtection: overcurrent protection and safe operation for devices under testInput power requirement: 110 V AC ±10%, 60 HzDesigned for laboratory, test bench, or electronic maintenance use	$ 2,487,800	19%	$ 472,682	$ 2,960,482	$ 5,920,964	45	2 Años	**Cumple**
2		Unidad	2	Gw Instek Gds-1102b.Memoria Interna Flash De 32 Mb Digital storage oscilloscope designed for measurement, analysis, and diagnostics of electronic signals in laboratories, training centers, and technical maintenance environments. The equipment shall provide high signal visualization, capture, and analysis capabilities, allowing intuitive operation through front panel controls and integrated on-screen help functions. The instrument shall include two (2) analog input channels with a minimum bandwidth of 100 MHz, enabling accurate signal analysis for electronics and telecommunications applications. The system shall incorporate digital visual persistence technology, allowing waveform display using up to 256 color intensity levels, facilitating identification of signal variations and providing a visualization experience similar to that of an analog oscilloscope. The unit shall provide a sampling rate of up to 1 GS/s, with a record length of at least 10 million points per channel, allowing detailed capture of complex signals. Additionally, it shall be capable of capturing up to 50,000 waveforms per second, enabling efficient analysis of transient events. The instrument shall include internal Flash memory of at least 32 MB for storing waveforms, configurations, and measurement data. For frequency-domain analysis, the equipment shall include Fast Fourier Transform (FFT) functionality with a processing capacity of at least 1 million points, allowing spectral analysis of captured signals. The user interface shall include dedicated keys for quick reset of horizontal time base, vertical voltage scale, and trigger settings, as well as advanced waveform control functions such as zoom, play, and pause for detailed analysis of captured signals. The device shall feature a color display of at least 7 inches, TFT-LCD type, with a minimum resolution of 800 × 480 (WVGA), as well as an integrated on-screen help system to facilitate operation. Additionally, the oscilloscope shall incorporate an integrated digital voltmeter function and multiple automatic measurement functions, providing at least 36 preset measurement parameters. The design shall be compact and optimized for bench-top laboratory use, minimizing the required workspace. The system shall allow connection to a computer via USB interface, including compatibility with software for data capture, storage, transfer, and analysis, as well as support for virtual instrumentation control drivers. The equipment shall support an automatic Go/No-Go testing function through a standard BNC signal interface, enabling rapid signal validation against defined parameters. Minimum Required Specifications: Type: Digital Storage Oscilloscope (DSO) with visual persistence Number of channels: 2 analog channels Minimum bandwidth: 100 MHz Sampling rate: up to 1 GS/s Record length: ≥ 10 Mpts per channel Waveform capture rate: up to 50,000 waveforms per second Vertical sensitivity: 1 mV/div to 10 V/div Display: 7-inch color TFT-LCD, minimum resolution 800 × 480 (WVGA) Display technology with digital persistence and up to 256 color intensity levels Internal memory: ≥ 32 MB Flash FFT analysis capability with ≥ 1 Mpts Go/No-Go signal testing function Integrated digital voltmeter function ≥ 36 automatic measurement functions Display functions: Zoom, waveform playback, and pause Integrated on-screen help system Connectivity: USB interface for PC connection Compatibility with data acquisition and analysis software and virtual instrumentation drivers Signal input connectors: BNC type ; Compact bench-top design ; Power input: 110 V AC, 60 Hz Type: Linear DC bench power supply Number of outputs: 4 channels Main adjustable channels: Voltage range: 0 to 32 V DC Current range: 0 to 3 A per channel Total power: ≥ 200 W Operating modes: Independent operation Automatic series/parallel tracking Display: digital display for voltage and current Control: digital front panel control Key lock function for configuration protection Output status indicator lights Protection: overcurrent protection and safe operation for devices under test Input power requirement: 110 V AC ±10%, 60 Hz Designed for laboratory, test bench, or electronic maintenance use	$ 1,850,100	19%	$ 351,519	$ 2,201,619	$ 4,403,238	45	2 Años	**Cumple**
3		Unidad	3	Gw Instek Afg-2225 Dual-Channel Arbitrary Function Generato Dual-channel arbitrary function generator designed for signal generation, simulation, and analysis in electronic laboratories, research environments, product development, and educational applications. The instrument shall provide accurate and stable signal generation with multiple waveform capabilities. The equipment shall include two (2) independent output channels, both with identical characteristics, enabling dual-signal applications such as differential signaling or IQ modulation, as well as other electronic and communication testing applications. Each channel shall provide an output amplitude of up to 10 Vpp, with a minimum frequency bandwidth of 25 MHz and a frequency resolution of up to 1 µHz, allowing precise control of the generated signal. The instrument shall include built-in standard waveforms, including sine, square, ramp (triangle), and noise, as well as the capability to generate user-defined arbitrary waveforms. The system shall allow users to edit multiple predefined waveforms or create entirely new custom waveforms for specific applications. The square waveform shall allow an adjustable duty cycle approximately from 1% to 99%, enabling its use as a pulse signal source for various testing applications. The generator shall incorporate several signal modulation capabilities, including Amplitude Modulation (AM), Frequency Modulation (FM), Phase Modulation (PM), Frequency Shift Keying (FSK), and signal summation (SUM). Additionally, it shall include frequency sweep, burst mode, and an integrated frequency counter, expanding its usability in communication and signal analysis applications. The instrument shall feature a color display of at least 3.5 inches (LCD), capable of clearly presenting operating parameters and the generated output waveform in real time. The user interface shall be intuitive and allow quick configuration of signal parameters. The instrument shall include USB Host and USB Device interfaces, enabling connection to computers and other devices for waveform transfer, data management, and instrument control. Minimum Required Specifications: Type: Arbitrary Function Generator Number of channels: 2 independent output channels Frequency bandwidth: ≥ 25 MHz Frequency resolution: up to 1 µHz Output amplitude: up to 10 Vpp Standard waveforms: sine, square, triangle (ramp), and noise Capability to generate user-defined arbitrary waveforms Ability to edit multiple predefined waveforms Adjustable duty cycle for square waveform: approximately 1% – 99% Built-in modulation types: AM, FM, PM, FSK, and SUM Additional functions: Sweep, Burst, and integrated frequency counter Display: minimum 3.5-inch color LCD Real-time waveform and parameter display Communication interfaces: USB Host and USB Device Compact bench-top design suitable for laboratory use Power input: 110 V AC, 60 Hz	$ 2,445,900	19%	$ 464,721	$ 2,910,621	$ 8,731,863	45	2 Años	**Cumple**
VALOR TOTAL OFERTA				**TOTAL**					**$ 19,056,065**			

MUTUAL INGENIERIA SAS

ÍTEM	DESCRIPCION MARCA/ REFERENCIA/ESPECIFICACIONES OFERTADAS	VALOR UNITARIO ANTES DE IVA	PORCENTAJE IVA (%)	VALOR IVA	VALOR UNITARIO IVA INCLUIDO	TOTAL IVA INCLUIDO	TIEMPO DE ENTREGA (Días Calendario)	TIEMPO DE GARANTIA	EVALUACION TECNICA -Cumple/ No cumple
1	Bench Linear DC Power Supply – 4 Output Channels Linear DC bench power supply designed for electronic testing, development, and maintenance applications. The equipment shall include a digital front panel control that allows precise adjustment and clear visualization of electrical parameters. The system shall provide four (4) independent output channels, with adjustable voltage and current regulation. The main channels must support independent operation as well as automatic series and parallel tracking modes, allowing expanded output capability when higher voltage or higher current is required. The unit shall incorporate a digital display for simultaneous voltage and current monitoring, fine adjustment controls, and a key lock function to prevent accidental modification of parameters during testing. Additionally, the device must include illuminated output status indicators to clearly show when the outputs are active. In combined operation modes, the main channels shall support configurations equivalent to approximately 64 V / 3 A in series connection or 32 V / 6 A in parallel connection, maintaining stable and regulated output suitable for laboratory applications. Minimum Required Specifications: Type: Linear DC bench power supply Number of outputs: 4 channels Main adjustable channels: Voltage range: 0 to 32 V DC Current range: 0 to 3 A per channel Total power: ≥ 200 W Operating modes: Independent operation Automatic series/parallel tracking Display: digital display for voltage and current Control: digital front panel control Key lock function for configuration protection Output status indicator lights Protection: overcurrent protection and safe operation for devices under test Input power requirement: 110 V AC ±10%, 60 Hz Designed for laboratory, test bench, or electronic maintenance use	$ 3,205,000	19%	$ 608,950	$ 3,813,950	$ 7,627,900	90 Dias	1 Año	**Cumple**
2	Digital storage oscilloscope designed for measurement, analysis, and diagnostics of electronic signals in laboratories, training centers, and technical maintenance environments. The equipment shall provide high signal visualization, capture, and analysis capabilities, allowing intuitive operation through front panel controls and integrated on-screen help functions. The instrument shall include two (2) analog input channels with a minimum bandwidth of 100 MHz, enabling accurate signal analysis for electronics and telecommunications applications. The system shall incorporate digital visual persistence technology, allowing waveform display using up to 256 color intensity levels, facilitating identification of signal variations and providing a visualization experience similar to that of an analog oscilloscope. The unit shall provide a sampling rate of up to 1 GS/s, with a record length of at least 10 million points per channel, allowing detailed capture of complex signals. Additionally, it shall be capable of capturing up to 50,000 waveforms per second, enabling efficient analysis of transient events. The instrument shall include internal Flash memory of at least 32 MB for storing waveforms, configurations, and measurement data. For frequency-domain analysis, the equipment shall include Fast Fourier Transform (FFT) functionality with a processing capacity of at least 1 million points, allowing spectral analysis of captured signals. The user interface shall include dedicated keys for quick reset of horizontal time base, vertical voltage scale, and trigger settings, as well as advanced waveform control functions such as zoom, play, and pause for detailed analysis of captured signals. The device shall feature a color display of at least 7 inches, TFT-LCD type, with a minimum resolution of 800 × 480 (WVGA), as well as an integrated on-screen help system to facilitate operation. Additionally, the oscilloscope shall incorporate an integrated digital voltmeter function and multiple automatic measurement functions, providing at least 36 preset measurement parameters. The design shall be compact and optimized for bench-top laboratory use, minimizing the required workspace. The system shall allow connection to a computer via USB interface, including compatibility with software for data capture, storage, transfer, and analysis, as well as support for virtual instrumentation control drivers. The equipment shall support an automatic Go/No-Go testing function through a standard BNC signal interface, enabling rapid signal validation against defined parameters. Minimum Required Specifications: Type: Digital Storage Oscilloscope (DSO) with visual persistence Number of channels: 2 analog channels Minimum bandwidth: 100 MHz Sampling rate: up to 1 GS/s Record length: ≥ 10 Mpts per channel Waveform capture rate: up to 50,000 waveforms per second Vertical sensitivity: 1 mV/div to 10 V/div Display: 7-inch color TFT-LCD, minimum resolution 800 × 480 (WVGA) Display technology with digital persistence and up to 256 color intensity levels Internal memory: ≥ 32 MB Flash FFT analysis capability with ≥ 1 Mpts Go/No-Go signal testing function Integrated digital voltmeter function ≥ 36 automatic measurement functions Display functions: Zoom, waveform playback, and pause Integrated on-screen help system Connectivity: USB interface for PC connection Compatibility with data acquisition and analysis software and virtual instrumentation drivers Signal input connectors: BNC type Compact bench-top design Power input: 110 V AC, 60 Hz	$ 727,000	19%	$ 138,130	$ 865,130	$ 1,730,260	90 Dias	1 Año	**Cumple**
3	AFG-2225 Dual-Channel Arbitrary Function Generator	$ 3,151,000	19%	$ 598,690	$ 3,749,690	$ 11,249,070	90 Dias	1 Año	**Cumple**
	TOTAL					**$ 20,607,230**			

Observaciones:

NOMBRE COMITÉ TECNICO	**Arley Bejarano Martínez C.C 1088267974**
FIRMA COMITÉ TECNICO	 Firmado digitalmente por Arley Bejarano Martinez Fecha: 2026.04.07 15:28:20 -05'00'