

Laboratory Safety and Occupational

Health

in Palestine Polytechnic

University

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• **The objective of a laboratory:**

1. Help students learn how to deal with safety equipment and occupational health and situations in which the use of devices and equipment.

2. Work on the development of the working environment for factories and other acts that lead to risk the lives of working.

3. Have knowledge of the crisis in the availability of work environments through the work of the examination process in the laboratory of hazardous materials resulting from manufacturing process.

4. Awareness sessions for all members of society on the subject of occupational health and safety and how to use these devices properly.

5. Work provide the money you spend as a result of non-use of process safety and occupational health through the use of appropriate equipment to protect workers

• Hardware and required equipment available in the laboratory:

❖ First: Personal Protective Equipment:

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# • Types of equipment and their functions:

## 1. Protective equipment head:

Are often used helmet made of hard plastic to protect the head from heavy shocks, be sure of their integrity and the absence of cracks or shocks, and the ligaments, the lining is torn and must be resistant to electrical shock, there are standard specifications.



## 2. protective equipment hands and arms:

Are often used to protect the hands of the dangers of burns - laceration - electric shock - chemical protection equipment and months of hands and arms, and most commonly used and effective are: gloves - hands pillows - socks. The rubber material of different kinds of the best materials for insulation gloves, socks, provided that they meet the specifications for global standard for the industry.



### **3-Protective equipment face and eyes:**

*Used often in this type of protective equipment and protective eye shield, face, and should be a shield or protection would be:*

- 1- comfortable with a reasonable degree.*
- 2- Court*
- 3- can be relied upon.*
- 4- can be cleaning and disinfection.*
- 5- to be in good condition.*



### **4-Protective equipment, ear and hearing:**

*Used to protect the auditory system from the damage to the high noise that can cause the percentage of hearing is often in the form of ear plugs and there is another type of rubber plant rubber specially healthy and needed to be cleaned after each use to ensure safety.*



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### 5-Protective equipment breathing apparatus:

Must be protected by breathing through the use of protection services, respiratory and must be to have specifications for the control of diseases caused by breathing air contaminated with dust and odors and gases and from the many examples of equipment for respiratory protection masks single-use - Filters - breathing apparatus at a distance - a respirator laptop.



### 6- Protective equipment, foot and legs:

Must be strong and able to resist shocks, and must also be the shoes conform to the specifications in the manual specifications. Statistics show performed on a wide range of foot and leg injuries that:

- The 66% of the injuries did not wear shoes prevention.
- 33% they wear normal shoes.
- that 82% of those who wear shoes prevention were scanned because of things struck an unprotected from the boot.



## **7- Protective Coveralls:**

Made of a high-quality microporous laminated fabric, the 3M 4540 Protective Coverall offers excellent protection against liquid chemical splashes and hazardous dusts. The exclusive breathable panel on the back significantly improves air circulation and therefore reduces heat stress. Ideal for light duty maintenance and asbestos handling.

Breathable back panel  
Elasticated Hood, Waist and Ankles for convenient safe wear and freedom of movement.



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• **Important notes for personal protective equipment:**

1 - use personal protective equipment when other measures fail (such as engineering - Admin) so is a protective measure necessary

2 - engineering control measures particularly important in hearing protection and breathing with specifications requiring workers to take all preventive control measures, the following review how to protect parts of the body by using personal protective equipment.

3 - The use of personal protective equipment requires knowledge of the dangers and good training for employees who must know that personal protective equipment alone does not reduce or prevent the risk that the aim of the program of personal protective equipment to protect workers from risk of injury.

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## Second: The following devices:

### *1-The miran sapher:*

The NEW handheld EcoLine 4000 provides the latest technology in flue gas analysis. One instruments with many features:

- Up to 4 gas sensors;
- CO sensor with manual or automatic protection;
- Built-in impact printer;
- Water, air, surface temperature measurements;
- Searching for presence and location of gas leaks;
- Differential pressure input for draft and gas velocity measurements;
- Operator safety with ambient CO continuous monitoring;
- Ambient temperature and relative humidity measurements.



### MIRAN SapphIRe Portable Ambient Analyzer

The Thermo Scientific\* MIRAN SapphIRe Portable Ambient Analyzer utilizes infrared spectroscopy to accurately measure many gases with a single instrument.

Wavelength coverage permits outstanding single and multi-gas monitoring as well as unknown compound identification, making the MIRAN SapphIRe the most versatile gas detection system on the market today.



### **Features**

- Easy to use
- Selective
- Sensitive for sub-ppm detection
- Versatile and easily upgraded
- Lightweight and portable

### **Applications**

- Industrial Hygiene
- Indoor Air Quality Studies
- Fume Hood/Tracer Gas Analysis
- Emergency Response Analysis
- Waste Anesthetic Gases
- Leak Detection for process maintenance

### **MIRAN SapphIRe Summary Specifications**

Detector: Type Single beam infrared spectrophotometer

Optics: Linear Variable Filter (LVF) from 7.7 to 14.1 $\mu$

seven Fixed Band Pass Filters 1.8, 3.3, 3.6, 4.0, 4.2, 4.5, and 4.7 $\mu$

Pump Flow Rate: 15l/min

Analysis Time: After power up: 20 seconds minimum; three minutes maximum

Alarms: User Definable

Readout: 8 line x 40 Character LCD

Response time: 18 seconds to 90% of final reading

Pathlength: 0.5m & 12.5m

Sample Cell Vol.: 2.23 liters

Battery: Internal, Rechargeable NiCad. 7.2 V nominal; 5.7 Ah capacity.

Discharge time 4 hrs; recharge time 4 to 6 hrs.

Output: 0-1VDC, Parallel, Serial

Dimensions: Approximately 553mm (21.8in) wide x 365 mm (14.4 in) high x 193 mm (7.6 in) deep

Mass: Approximately 10 kg (24 lbs.)

Intrinsic Safety: User specified models are certified for CENELEC, Groups IIC, Zone 1 and 2;

Certifications: ETL (Class I, Div. 1. Groups B,C&D,Temp. Class T4)

ETL-C (Class I, Div. 1. Groups B,C&D,Temp. Class T4)

CENELEC (EExib d IIB + H2 T4)

### **Accessories**

Leak Detection/Sampling Wand P/N CR014QC

15 3/4" (40cm) long, and is composed of anodized aluminum tubing and chemically stable plastic.

Transportation / Carrying Case P/N CR013XM

Wheeled case with telescoping handle doubles as a sturdy shipping case which will

hold a spare battery, battery charger, cables, sample wand, carrying strap and filters.

Field Performance Check Kit P/N CR014LG.

## **2- Casella:**

### **Casella APEX Intrinsically Safe Air Sampling Pumps**

- Extensive flow range from 5 ml to 5 L/min
- Fast 1.5 hour charge via drop in charger
- Superb battery life > 45hrs @ 2 L/min (CEM)
- Large LCD indicating real time flow & volume
- Stable, accurate digital flow control (<±3%)
- Gas Bag outlet for grab sampling
- On board data logging in Pro version
- Duration and scheduled sampling.
- Compliant to NIOSH 0600, EN1232



## Applications

- Personal & area dust / solvent monitoring
- Construction / Demolition sites
- COSHH & OSHA Sampling
- Manufacturing Industries
- Welding fume
- Petrochemical Plants / Offshore
- Indoor air quality monitoring
- Spray booths / Powder coating



Personal sampling for particulates in the breathing zone

Designed to comply with EN1232, MDHS 14/3, NIOSH 0600 requirements

Available in single kits

Available in multiple 5 pack kits with a 5 way charger or 5 separate chargers

Three buttons on the pump and a customized LCD make the user interface intuitive

## ❖ Technical Data Product:

Vitalograph 2120

Model: 2120

Size: 10 5/8" x 9 3/4" x 6 3/4" (2120 & cradle)

Weight:

41bs 1oz net

Operating Temperature Range:

63 - 98 °F

Voltage:

110 - 250V~ 50/60Hz

Flow Detection Principle:

Fleisch Type Pneumotachograph

Volume Detection:

Flow Integration

Accuracy when operated in operating temperature range conditions:

Volume better than +/- 3% (up to 8L)

Flow better than +/- 5% (up to 15 L/s)

Maximum Displayed Volume:

> 8 L

Maximum Test Duration (FVC):

20 seconds

Exp Flow Impedance:

<0.1 kPa/L/s @ 14 L/s

Report:

PDF Vitalograph Reports or optional external inkjet printer

PERFORMANCE STANDARDS

Meets or exceeds ATS/ERS: 2005 Guidelines & all COPD Guidelines

Safety Standards:

EN60601-1 & 2

Designed and manufactured to following QA/GMP standards:

ISO 13485:2003  
FDA 21CFR820.

### **3- Device to measure the dose of dust:**

#### ***Escort ELF Specifications***

##### **Operating Flow Control**

Volumetric flow rate held within  $\pm 2.5\%$  of set-point over the 1-to-3 lpm operating range ( $\pm 5\%$  to 0.5 lpm), with automatic compensation for battery voltage, altitude, temperature and sample load changes.

##### **Flow Rate**

Flow rate adjustable between 0.5 and 3 lpm; lower flow rates attainable (to 1 mlpm) with optional Gemini Twin-

Point Sampling accessory.

##### **Flow Indication**

Liquid Crystal Display provides 0.01 lpm resolution.

##### **Operating Range**

30 inches of water load up to 2 lpm and 10 inches up to 3 lpm.



### **Flow Blockage Detection**

Flow-Fault LED comes on immediately when block is detected. Pump shuts down within 90 seconds if block is not cleared.

### **Elapsed Time Readout**

To 999 minutes in increments of 1 minute. Holds the last reading after either flow blockage or low battery shutdown and

when pump is off or in hold mode.

### **Operating Time**

Varies with flow rate and sampling device loading.



### **Operating Temperature Limits**

32°-113°F (0°-45°C)

### **Physical Weight**

19 oz. (550 gm), with battery pack.

### **Dimensions**

2" D x 4" H x 3.78" W  
(5.1 cm x 10.3 cm x 9.8 cm), with battery pack.

### **Power Supply**

4.8-volt battery pack of four nickel cadmium cells.

### **Battery Pack Capacity**

1.8 amp hours

### **Battery Pack Recharge Time**

14-16 hours (overnight) with Omega™ Charger.

### **Typical Battery Pack Life**

300 or more charging cycles.

❖ *Approvals and Standards:*

Escort LC Sampling Pumps are classified by UL as intrinsically safe for use in hazardous locations – Class I, Groups A, B, C and D; Class II, Groups E, F and G; and Class III, Division I locations.

#### 4- A device for measuring the intensity of light:

##### FEATURES

- Light-measuring levels ranging from 0.01lux~0.1klux/0.01fc~0.01kfc, repeatedly.
- High accuracy and rapid response.
- Data-hold function for holding measuring values.
- Unit and sign display for easy reading.
- Automatic zeroing.
- Meter corrected for spectral relative efficiency.  
Correction factor need not be manually calculated for non-standard light sources.
- Short rise and fall times.
- Peak-hold function for tracing the peak signal of light pulse with least duration 10 $\mu$ s and keep it.





- Capable of selecting measuring mode in lux or fc scale alternatively.
- Auto power off 30 minutes.
- Maximum and minimum measurements.
- Relative reading & Reset function.
- Easy to read large backlit display

### ❖ **SPECIFICATIONS:**

- Display :3-3/4 digit LCD with high speed 41 segment bargraph.
- Measuring Range:40.00 lux,400.0 lux,4000 lux,40.00 Klux and 400.0 Klux,40.00 fc,400.0 fc,4000 fc,40.00Kfc.  
NOTE: 1fc=10.76lux,1Klux=1000lux,1Kfc=1000fc
- Overrange Display:LCD will show "OL" symbol.
- Spectral Response: CIE Photopic. (CIE human eye response curve).
- Spectral Accuracy: CIE  $V_\lambda$  function  $f1' \leq 6\%$
- Cosine Response:  $f2' \leq 2\%$
- Accuracy:  $\pm 5\%$  rdg $\pm 10d.$ ( $<10,000Lux$ )  
 $\pm 10\%$  rdg $\pm 10d.$ ( $>10,000Lux$ )
- Repeatability:  $\pm 3\%$
- Sampling Rate: 1.5 times/sec of analog bargraph indication; 1.5 times/sec of digital display.
- Photo Detector: One silicon photo diode and spectral response filter.
- Operating temperature & Humidity :  
 $0^\circ C$  to  $40^\circ C$ ( $32^\circ F$  to  $104^\circ F$ ) & 0% to 80% RH.

- Power Source: 1 piece 9V battery.
- Photo detector Lead Length: 150cm (approx.);
- Photo detector Dimensions: 115L×60W×20H(mm);
- Meter Dimensions: 203L×75W×50H;
- Weight: 280g.
- Accessories: Carry case, instruction manual and battery.

### 5-A device for measuring the intensity of noise.

#### ❖ Applications

- Occupational & Industrial Hygiene Noise Evaluations
- Noise Exposure Calculations
- Hearing Protector Selection using HML or Octave Band Methods
- EU Physical Agents Directive Measurements
- Machinery Noise Tests
- Noise Ordinance & Community Noise Assessment
- General Noise Measurements

• Designed for Occupational Noise Measurements

- LAeqLEPd (LEX) Peak(C) & C-A for the UK & Europe
- Lavg TWA & Dose for OSHA/MSHA
- Class 2 to IEC 61672



- Colour OLED Display
- 120dB Measurement Range
- Sound Level (SPL)
- Lmax&Lmin
- A C & Z
- F S & I
- Supplied with a windshie

**6- A device for measuring the intensity of the instantaneous noise:**

**Device name:**

**Noise Dosimeter**

**Applications:**

Whenever simple straight forward noise measurements are required on individuals at work the GED-320 is ready to go. By default, the instrument starts with the most popular OSHA measurement set up with all the correct parameters such as the A frequency and Slow time weighting already selected. The 5 dB exchange rate and 90 dB criterion level are programmed into the unit so it is



only required to switch the meter on, perform an acoustic field calibration and start the run. The instrument takes care of everything else.

### **Operation & Use**

The instrument selects the high measurement range from 70 to 140 dB to include all the likely harmful noise levels typically encountered in the workplace. The signal from the microphone is sampled and all subsequent noise parameters are calculated from these samples taken at 100 times a second. This ensures that no data, however short, is missed from the overall results. The data can be recalled and read from the display at any time. The results stored in memory can be directly printed or downloaded to a computer.

Every CEL-320 noise dosimeter comes with the CEL-6702 (dB10) Windows software package that allows the user to customize the instrument to take account of special circumstances or for special measurement requirements. It is possible to turn off the functions that are not needed from a run to simplify operation and avoid later confusion. The CEL software package supplied with each unit allows for the overall results from runs to be downloaded one at a time or in batches to the hard disk. Runs may be archived after the details of the wearer have been added and saved along with any specific noise about the conditions during the run. Run data may be recalled to the customized LCD screen using the intuitive keypad or the instrument can be connected to a standard office printer and output as a single pre formatted page. This printout shows all the relevant

information about the run including the calibration details before and after the measurement has taken place.

CEL-320 dosimeters are available in single kits that include an acoustic calibrator for on site verification of the meter, a small foam windscreen to protect the microphone when used outdoors, setup and download software and cable all housed in a stylish kit case.

Multiple kits are also available in popular 5 or 10 packs that expand the usefulness of the instrument for larger organizations wanting to get the job done in the least possible time. A single copy of the CEL-dh10 software serves all meters in the kits.

### **CEL-320S Convertible Sound Level Meter**

The CEL-320S is a new concept in hand held noise meters. In its standard configuration with the CEL-425 stalk microphone it can be used as a simple integrating sound level meter. By the addition of the CEL-6681 cable microphone the dual function instrument is converted into a fully functional noise dosimeter. As a sound level meter the CEL-320S measures and displays the instantaneous level, the minimum and maximum level and the time average level, sound exposure level and peak level.

#### **Device types:**

***1-CEL-320S Convertible Sound Level Meter***

***2-CEL-320 Noise Dosimeter***

**7-Vitalograph Alpha Touch  
with software.**

*The new Vitalograph ALPHA Touch is an easy to use, lightweight desktop spirometer that offers the benefits of portability, PC connectivity and a built in printer.*



*Automatic two-way synchronisation of patient data and test sessions between ALPHA Touch and Spirotrac PC software. Print via the internal printer, which holds longer than average rolls or produce A4/letter sized reports via Spirotrac PC software, included.*

*The ALPHA Touch features a precise and robust Fleisch pneumotachograph and a simple icon driven menu, plus a large, high resolution colour touch-screen and storage capacity for 10,000 subjects.*

*Carriage will be added at the end of your order.*

## 8- Cell Phone radiation detection device.

### Radiation Meter:

#### Description

- **Product Name:** TES92  
ElectroSmog Meter Cell Phone  
Radiation Meter
- **Category:** Cell Phone Anti  
Radiation Sticker.
- **Short Description:** Cellular Phone,  
Transmission Station, Spy Camera.










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	Description	Picture	brand	Pries heke I	
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	<p><b>3M Virtua AP Protective Eyewear</b></p>		<p>3m USA</p>	<p>19</p>
	<p><b>Safety Spectacles</b></p> <ul style="list-style-type: none"> <li>- high quality combined with modern stylish wraparound design for increased wearer confidence.</li> <li>- Excellent impact resistance.</li> <li>- Polycarbonate lens provides reliable protection against specified levels of hazardous UV radiation.</li> </ul>		<p>3M USA</p>	<p>63</p>
	<p>Fahrenheit Goggles</p> <ul style="list-style-type: none"> <li>- Soft PVC crystal frame with a wide support area all around the face to enhance comfort.</li> <li>- Specially designed to fit with prescription glasses, dust mask or respiratory half-mask</li> </ul> <p>Aerodynamic shape with cylindrical lens for 180° of distortion-free vision</p> <p>The benefit of MX coating is a lens that is anti-scratch, anti-mist, anti-static and has some resistance to chemical attack</p> <p><b>Standards</b> EN166:2001</p>		<p>3M USA</p>	<p>62</p>
	<p>Protective Gray Anti-Fog Lens, Black Frame</p>		<p>3M USA</p>	<p>119</p>



	<p><b>Reusable Ear Plugs (Corded) with Storage Case.</b></p> <p>- Unique outer flange design helps keep ear plug in place. Soft formulation provides added comfort and finger grip design improves ease of insertion for greater safety. Tough plastic storage case with belt clip included.</p> <p>- Conforms to EN 352-2 H=27 M=22 L=20 SNR=25 Colour</p> <p>Orange Unit Box of 50 Pairs</p>		3M	8	
	<p><b>Corded Earplugs</b></p> <p>- Hypoallergenic foam Tapered shape Smooth surface helps protect against unwanted dirt</p> <p>Manufactured to EN352-2. SNR31 db. Box of 100 pairs</p>			2	
	<p><b>Uncorded Earplugs</b></p> <p>Hypoallergenic foam Tapered shape Smooth surface helps protect against unwanted dirt</p>			520 /50 0Pc s	

	<p>Manufactured to EN352-2. SNR31 db. Box of 200 pairs</p>			
	<p>Peltor Next Tri-Flange Corded Ear Plugs</p> <p>Soft flexible flanges adapt to the shape of the ear canal to form a triple-seal against noise The plastic LiveWire stem allows for quick clean and optimal insertion for maximum protection</p> <p>With LiveWire vinyl cord Manufactured to EN352-2. SNR 29db. Box of 100 pairs</p>			6
	<p>Peltor Electronic Headset with Boom Microphone</p>			107 5
	<p><b>Headband Ear Defenders.</b></p> <p>Peltor Optime I is very versatile protection characterised by its lightness.</p> <p>Despite being so lightweight, its the best imaginable protection. We have combined a low profile with generous inside depth. This makes it easy to team with other equipment and means that the ear rests</p>		Optime 1	86

<p>comfortably.</p> <p>Optime I is the natural choice when you need to use all-round protection for both short and long spells. It is first-rate for use in environments with moderate industrial noise, such as workshops, sheet-metal shops and printing works, but can also be used to good effect outdoors, for instance when mowing the lawn or in connection with hobby and leisure activities. (SNR27)</p> <p>27 DB</p> <p><a href="#">Add To Cart</a></p>			
<p><b>Headband Ear Defenders.</b></p> <p>* Optime II has been developed for demanding noise-hazard environments and muffles even extremely low frequencies to a maximum degree.</p> <p>* The sealing rings are filled with a unique combination of liquid and foam. The result is an optimum seal with low contact pressure, which</p>	<p>CE EN 352-1</p> 	<p>Optime 2</p>	<p>110</p>

<p>provides snug comfort even during long-time use.</p> <p>* The sealing rings have ventilation channels and are covered with soft, patterned, hygienic foil.</p> <p>* Optime II is a suitable choice for environments with substantial industrial noise or construction machinery, airports and agricultural work.</p> <p>. (SNR31)</p> <p>31 DB</p>			
<p><b>Headband Ear Defenders.</b></p> <p>Designed for use in extremely noisy environments at all frequencies. Airport Tarmacs / noisy generators etc.</p> <p>It is suitable for use in environments with substantial industrial noise or construction machinery and airports. The protection consists of a double casing that minimises resonance in the holder casing. This results in maximum high-frequency muffling, whilst at the same time still easy to understand speech and signals. An</p>		<p>Optime 3</p>	<p>160</p>

<p>acoustic connection between the inner volume and the volume between the casings provides maximum low-frequency muffling.</p> <p>Easy to use fully Multi Position Padded Wide Head Band with 4-Point Steel Suspension that distributes pressure for comfort. The sealing rings are broad are filled with a soft plastic foam, for best fit and low contact pressure, ensuring the best possible comfort even during long-term use.</p> <p>Protection of 35dB. Conforms to EN352-3. Recommended for noise levels of between 95dB(A) and 110dB(A).</p>			
<p><b>Hard Hat: 4-Point Ratchet Suspension</b></p> <p>- These lightweight polyethylene hard hats deliver excellent impact resistance. Universal accessory slots work with a variety of eye, face and hearing devices. Hat features a woven nylon suspension, a cushioned brow and a vented headband.</p>		<p>3M USA</p>	<p>54</p>
<p><b>Medium 1/2FACE Respirator</b></p> <p>Medium, Half Face Piece Respirator, Use With 2000 Series, Filter 7093, P100, Cartridges 6000 Series, Or Dual Airline Systems Against A Variety Of Gases, Vapors &amp; Particulate Hazards According To NIOSH</p>			<p>77</p>

	Approvals.			
	<p><b>Large Full Face Respirator</b></p> <p>Large Full Face Piece Respirator, Use With Filters 2000 Series, Filter 7093, P100, Cartridges 6000 Series, Or Dual Airline Systems Against A Variety Of Gases, Vapors &amp; Particulate Hazards According To NIOSH Approvals.</p>		<p>3M USA</p>	<p>560</p>
	<p><b>Half Facepiece Respirator</b></p> <p>This half facepiece reusable respirator 7500 Series uses advanced silicone material to help provide comfortable and durable respiratory protection. The 3M™ Cool Flow™ Valve helps make breathing easier and can reduce heat and moisture build-up for cool, dry comfort.</p> <p>... comfortable and durable respiratory protection:</p> <p>The 3M™ Half Facepiece Reusable Respirator 7500 Series offers the following features:</p> <ul style="list-style-type: none"> <li>- Advanced silicone material for increased comfort and greater durability</li> <li>- Proprietary 3M™ CoolFlow™ Valve helps make breathing easier and can offer</li> </ul>			<p>153</p>

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cooler and drier  
comfort

- Dual-mode head harness that adjusts easily so users can wear the respirator in either standard or drop-down mode
- Solid exhalation valve cover which directs exhaled breath and moisture downward while helping protect the valve area from debris while also making for easier cleaning
- For use with 3M™ Cartridges 6000 Series; 3M™ Filters 2000, 2200, 7000 or 5000 Series; or 3M™ Dual Airline Systems against a variety of gases, vapors and particulate hazards according to NIOSH approvals.
- Head harness assembly and spare parts available
- Comes with reclosable storage bag

When properly fitted and used with approved 3M™ Cartridges and Filters, helps provide respiratory protection from a variety of gases, vapors and particulate hazards at concentrations up to 10 times the Permissible Exposure Limit (PEL). Not for use in environments that are immediately dangerous to life or health (IDLH).

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	<p>Disposable Respirators</p> <p><b>I</b>ndividually packed to avoid contamination</p> <ul style="list-style-type: none"> <li>• Easy-to-breathe through and not prone to collapse</li> <li>• Headband keeps a near constant tension, reducing strap pressure and ensuring secure fit to face</li> <li>• Ultra soft, flexible and comfortable fit</li> <li>• Patented exhalation valve (Style Nos. 04288 and 04291) reduces heat build-up and makes breathing easier and cooler</li> <li>• Straps are colour-coded, making identification easier</li> <li>• Comply with EN 149</li> <li>• CE marked</li> </ul>			<p>14</p>
	<p>Particulate Respirator FFP1 filter</p> <p>- The flexible, textured edges and braided headband are designed to give a comfortable and secure fit. The M-Noseclip is easy to</p>		<p>3M USA</p>	<p>13</p>

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	<p>mould to your nose offering greater comfort.</p> <ul style="list-style-type: none"> <li>- 3M™ Advanced Electret filter material helps you to breathe easily through your respirator, for comfortable protection. The 8300 Series meets the optional clogging test (marked with a D) for prolonged breathing comfort (8312, 8322 and 8833 only).</li> <li>- The 3M™ Cool Flow Valve, a one-way valve for easy exhalation, offers you a cooler more comfortable wear, especially when working in hot and humid conditions (8312, 8322 and 8833 only).</li> </ul>			
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	<p><b>Dust/Mist Valved Welding Respirator FFP2</b></p> <p>FFP2 valved welding respirator to protect against particulates and ozone from welding processes. The activated carbon layer also offers nuisance level (below OEL) protection from organic vapours</p>			<p>38</p>
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### Dust/Flu Mask(Valved)

FFP3 filter






1. Lightweight and soft anti-allergenic materials
2. Three-panel design for better comfort and easier communication
3. Straps reduce pressure and provide comfortable and secure fit
4. Model 9332 mask is recommended by 3M for protection against Swine Flu, Avian Influenza (Bird Flu), also SARS virus (Severe Acute Respiratory Syndrome).
5. this new generation of respirators provides comfort and style without compromising performance.
6. reliable, effective protection against fine particulates.
7. 3M Cool Flow valve reduces heat build-up to offer comfortable protection, particularly in hot and humid conditions.
8. Approval: CE Marked.
9. Maximum use level: Assigned Protection Factor: 20 x OEL (Nominal Protection Factor 50

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	<p>x OEL). 3M 9332 masks are approved to EN149:2001 FFP3.</p> <p>10.Package: 10pcs/box, 12boxes each carton</p>			
	<p><b>HALF MASK M/L FACEPIECE</b></p> <p>Reuseable, compact and lightweight</p> <p>Provides comfort, protection and simplicity at an affordable price</p> <p>Available in two sizes and featuring a soft elastomeric face seal for a secure fit</p> <p>The filter holder and cartridges are attached using a unique snap-on design</p> <p>When complete, the face mask will provide protection against particulates, organic vapours and acid gases</p> <p>Cartridges, filters and filter holder are sold separately</p>			
	<p>Filter for HALF MASK M/L FACEPIECE</p> <p>A1 for gaz</p>			<p>39</p>

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	<p>Filter for HALF MASK M/L FACEPIECE</p> <p>A1p2 for gaz</p>			<p>39</p>
	<p><b>Protective Coveralls</b></p> <p>Made of a high-quality microporous laminated fabric, the 3M 4540 Protective Coverall offers excellent protection against liquid chemical splashes and hazardous dusts. The exclusive breathable panel on the back significantly improves air circulation and therefore reduces heat stress</p> <p>Ideal for light duty maintenance and asbestos handling</p> <p>Breathable back panel</p> <p>Elasticated Hood, Waist and Ankles for convenient safe wear and freedom of movement</p>		<p>3M</p>	<p>37</p>
	<p><b>Humidity &amp; Temperature Meter</b></p> <ul style="list-style-type: none"> <li>Measures humidity ( %RH )</li> <li>Measures temperature in °C or °F with thermistor sensor in the probe and K-Type thermocouple</li> <li>Backlit LCD</li> <li>Data hold and max hold functions</li> <li>Auto power off function</li> <li>Low battery indication</li> <li>Impact-resistant ABS case with rubber boot and flip-out stand for freestanding use</li> <li>Supplied with carry bag &amp; strap, rubber boot, K-Type flexible</li> </ul>		<p>CEM</p>	<p>220</p>

wire probe and battery

Temperature Range	0° to 40° C Probe -20° to 1000° C K type
Temperature Resolution	0.1° C up to 200°, 1° C over 200°
Basic Accuracy	±3.5% RH from 5% to 98.0% RH
Humidity Range	0.1 to 100% RH
Humidity Resolution	0.1% RH
Accuracy	0.10 to 1.00

**Professional Digital Light Meter DT-1309 USB**

- Unit Lux or Footcandle (fc) selectable
- Multifunctional LCD, 3 3/4 digits and 42 segment bargraph
- Auto Zero
- Min/Max Memory
- Over-range



CEM

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<p>indication</p> <p>Data Hold</p> <p>Relative Readings (compare location 1 to location 2)</p> <p>Low power consumption, automatic power- off after 30 min</p> <ul style="list-style-type: none"> <li>• USB connection to most Windows(TM) computers</li> </ul> <p><b>Specifications:</b></p> <ul style="list-style-type: none"> <li>• Ranges: 0-40 / 400 / 4,000 / 40,000 / 399,900 Lux</li> </ul> <p>0-40 / 400 / 4,000 / 39,990 fc</p> <p>Resolution: up to 0.01 fc</p> <p>Accuracy: ±5%</p> <p>Repeatability: ±3%</p>				
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**Sound Level Meter  
(50 Set Datalogger)**

**Features:**

1. This unit confirms to the IEC61672-1 CLASS2 for Sound Level Meters.
2. MAX & MIN measurements
3. Over range display
4. Under range display
5. A & C Weighting
6. FAST & SLOW response
7. Digit LCD display with a resolution of 0.1dB, bargraph & white backlight.
8. Readings memories

Accuracy	±1.4dB
Frequency range	31.5Hz~8KHz
Dynamic range	50dB
Level ranges	LO: 30dB~80dB Med:
	50dB~100dB
	Hi: 80dB~130dB
	Auto: 30dB~130dB



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**TEMPERATURE AND HUMIDITY DATALOGGER**

With the CEM DT-171 you can easily store temperature and humidity measurements and via the USB port on your computer edit/analyse/monitor data.

- Storage capacity: 16,000 readings for temperature and 16000 for humidity (RH).
- Temperature range: -40 ~ 70 ° C.



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- Humidity (RH) range: 0-100%.
- Accuracy: 1 ° C / 2% RH.
- The sample interval is adjustable from 2 sec. to 24h.
- Battery life: over 3 years.
- Status information is displayed with two LEDs.
- Transmission of data collected via the USB interface.
- Alarm display as maximum / minimum set values are exceeded.
- Included is the acquisition (analysis) software for graphs and stored data.

Including holder, lithium battery, software.

Professional 12:1 IR Dual Laser Thermometer up to 1202 deg F 550c

This is a brand new CEM DT-8802 meter from Ruby Electronics. This meter is a certified digital non-contact infrared thermometer with built-in **DUAL** laser pointers and back-light LCD display. This top-of-the-line device has a narrow **12:1 distance to spot ratio** and a wide range(-50 °C to **550 °C**). Forget the old analog devices,



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this newly designed digital light weight device gives you long lasting power with accurate measurement from safe distance. The build-in dual laser pointers help you aim better at the object for an accurate result. The back light LCD screen allows you to read easily in the dark.

**Gas Analyzer**

Infrared spectroscopy provides the MIRAN SapphIRE Analyzers with the unique ability to specifically and accurately measure many gases with a single unit.

The MIRAN's wavelength generator filter has a unique design that allows accurate and fast wavelength selection.

This feature alone separates the MIRAN SapphIRE Analyzer from other gas analyzers



Offers optimal measurement capabilities for high-end users who need to measure a wide variety of mixed atmosphere of gases. Contains over 120 single gas applications with customization capability. Ideal for consultants, industrial hygienists, regulatory agencies, research scientists and emergency response professionals.



Thermo

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	<p>Automotive gaz analyzer 4 gas</p> <p>( CO, CO2, HC, 02)</p>		<p>Tecnotest 488</p>	<p>190 00 she kel</p>
	<p><b>Casella Microdust Pro, Real-Time Dust Monitor</b></p> <p>The Microdust Pro is a rugged, hand- held, data-logging meter for the realtime detection of airborne dusts, fumes and aerosols.</p> <p>It has a large LCD display and a unique graphical facility, allowing the user to instantly view the dust level and trends. It is ideal for walkthrough surveys of ambient and indoor workplace environments. A quick, easy to use instrument, giving the user additional qualitative data which cannot be gained by</p>			<p>USD 400 0</p>

gravimetric air sampling methods alone.

This extremely versatile instrument can also be used with a range of accessories for static and size selective sampling applications.

- Unique real time graphical display
- Extensive range from 0.01 to 2500 mg/m<sup>3</sup>
  - Removable sampling probe
- Rugged design for harsh environments
  - Multi language operation
  - Sampling for Respirable, PM 2.5 & PM10
- Field calibration check
- Rechargeable or dry cell operation


**MSA Escort®  
ELF Sampling  
Pump**





- Operating range: 30" WC to 2 LPM or 10" WC to 3 LPM
- Patented electronic laminar flow control: Volumetric flow rate held within ±2.5% of setpoint over the 1 to 3 LPM operating range, with automatic compensation for battery voltage, altitude, temperature, and sample load changes

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	<ul style="list-style-type: none"> <li>• Internal secondary standard calibrates the pump continuously, for compliance with OSHA 3058</li> <li>• Inlet filter traps moisture and particulate matter</li> <li>• Stainless steel-filled plastic case provides EMI/RFI protection; Rated IP66 for resistance to water and dust ingress</li> <li>• Optional flow fault LED indicator shows any sample inlet blockage; Pump shuts down within 90 seconds if block is not cleared</li> <li>• Run/Hold feature allows "time out" during sampling process</li> <li>• Elapsed time readout and low battery warning</li> <li>• Low flow and dual tube sampling available with Gemini Twin-Port sampler</li> <li>• LCD display with resolution of 0.1 LPM in standard mode, 0.01 LPM in calibration mode</li> <li>• Keypad design allows for adjustment of flow rates without tools or a potentiometer</li> </ul>			
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	<p><b>Vitalograph Alpha Touch with software.</b></p> <p>The new Vitalograph ALPHA Touch is an easy to use, lightweight desktop spirometer that offers the benefits of portability, PC connectivity and a built in printer.</p> <p>Automatic two-way synchronisation of patient data and test sessions between ALPHA Touch and Spirotrac PC software. Print via the internal printer, which holds longer than average rolls or produce A4/letter sized reports via Spirotrac PC software,</p>			<p>USD 300 0</p>
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	<p>included.</p> <p>The ALPHA Touch features a precise and robust Fleisch pneumotachograph and a simple icon driven menu, plus a large, high resolution colour touch-screen and storage capacity for 10,000 subjects.</p> <p>Carriage will be added at the end of your order.</p>			
	<p><b>Cell Phone radiation detection device, Radiation Meter</b></p> <p><b>Description</b></p> <ul style="list-style-type: none"> <li>• <b>Product Name:</b> TES92 ElectroSmog Meter Cell Phone Radiation Meter</li> <li>• <b>Category:</b> Cell Phone Anti Radiation Sticker <a href="#">Add to My Favorite Catalog</a></li> <li>• <b>Short Description:</b> Cellular Phone, Transmission Station, Spy Camera, Wireless bug, WIFI</li> </ul>			<p>USD 350</p>
	<p><b>Noise Dosimeter</b></p> <p><u><b>Applications:</b></u></p> <p>Whenever simple straight forward noise measurements are required on individuals at</p>			<p>\$744.00</p>

work the CEL-320 is ready to go. By default, the instrument starts with the most popular OSHA measurement set up with all the correct parameters such as the A frequency and Slow time weighting already selected. The 5 dB exchange rate and 90 dB criterion level are programmed into the unit so it is

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