

Mining and Specialty Equipment

Ultralight™ Cap Lamp System

The state-of-the-art Ultralight Cap Lamp System has the brightest prefocused spotlight available (tungsten halogen) and provides exceptionally brilliant illumination of the work site. It has a long-life Luminator battery and a variety of battery charging equipment available.

The two-inch diameter, state-of-the-art Ultralight Cap Lamp headpiece is made of high-impact polycarbonate and consists of only five major parts:

- A one-piece polycarbonate bezel/lens (glass-laminated lens optional).
- A computer-designed, prefocused bulb/reflector assembly, featuring a high output, tungsten-halogen bulb, accurately positioned in the focal point of the reflector to assure a good spot.
- A plug-in tungsten-halogen bulb emergency escape light.
- A main housing with a printed circuit board for bulb and battery cable connections.
- A three-position switch.

A wire spring keeps the bulb/ reflector assembly properly resting against the lens to reduce vibration and mechanical shock.

The prefocused bulb/reflector assembly eliminates the need for a focusing mechanism. Both the on/off switch and the charging contact are located in the headpiece housing. With only four major parts, inventory, replacement stocks and downtime are minimized.

The tungsten-halogen bulb provides a white, bright light, achieved with little battery power consumption, because tungsten-halogen bulbs are extremely efficient. In fact, more light output is achieved without reduction in bulb life. The light is also softer to miner's eyes.

In addition, the light output is more consistent, providing 85 to 95% of its initial light output, even at 70% of life expectancy. The bulb has a 1.0 amp rating at 4 volts. This lower amperage allows for longer cap lamp use between charges.

The prefocused bulb/reflector assembly efficiently concentrates over 90% of the light into a highly concentrated beam for exceptionally bright illumination of the work site.

Ultralight Specifications

Operating voltage: 4.2 to 3.8

Operating Time: Up to 14 hours (Luminator Plus)

Battery Dimensions: 7¼" x 5¼" x 1½"

Weight: 4 lb 12 oz

Light Intensity: @ 10 feet (using standard bulb with fully charged battery) = 1450 LUX

Bulb Amperage: 1.0 (nominal)

MineSpot® Luminator® Battery

The MineSpot Luminator Battery is assembled as a complete sealed unit that requires nothing more than routine charging and periodic watering. The battery case is impact-resistant polycarbonate with reinforced bottom corners and molded-in belt loops. The Luminator Battery was designed for low maintenance and long life. Watering is required only every 4–6 weeks. The MineSpot Luminator Battery must be charged after each use.

Approvals and Standards

All MSA Cap Lamps have Mine Safety and Health Administration Certifications (MSHA certification) for use in an atmosphere of methane and air only.



MineSpot Cap Lamp System (shown with new battery top and new clip system)



Remote Adapter



Remote Adapter Cover

Cap Lamp System and Accessories

Ultralight Cap Lamp System

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| Ultralight Cap Lamp, with acid-filled Luminator Plus battery (16 AH) | 817172 |
| Ultralight Cap Lamp, with acid-filled Luminator Plus battery (16 AH) and remote power takeoff adapter | 817170 |
| Ultralight Headpiece, cable and cover assembly (no battery) | 484820 |
| Ultralight Headpiece, cable and cover assembly (no battery), with remote power takeoff adapter | 813230 |

MineSpot Luminator Battery

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| MineSpot Luminator Plus battery (16 AH), with acid | 817178 |
| Battery Clip, pack of 10 (for new, taller battery top) NEW! | 10078291 |
| Screw for Battery Clip (P/N 10078291), pack of 10 | 10078292 |
| Clips (2 required) for Luminator battery (with old battery top) | 817182 |

Power Builder Charger Stations

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|-------------------------------------------------------------------|----------|
| Power Builder single-unit, AC | 10002436 |
| Power Builder 10-unit | 10002439 |
| Circuit Board Module, replacement | 10002462 |
| Transformer, replacement | 10002464 |
| Leg Assembly Kit (up to 60-station) - includes right and left leg | 10002465 |

Cap Lamp Spare Parts and Accessories

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| Bulb/Reflector | 480374 |
| Bezel/Lens | 476705 |
| Cable Assembly | 484688 |
| Secondary Bulb | 637035 |
| Bezel with glass laminated lens | 491869 |
| Swivel Adapter | 491870 |
| Comfo-Cap (white), with lamp bracket and cord holder | 91522 |
| Battery Pouch, nylon (fits MSA and Koehler) | 803100 |
| Remote Adapter with battery top | 801581 |

Adapters for Koehler (Wheat) Cap Lamps and Charging Equipment

Using these adapters will permit you to charge an MSA Ultralight Cap Lamp on Koehler (Wheat) equipment.

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| 1 Single-unit adapter for use with Wheat single unit slide-on (Mark II) or turnkey (Mark V) chargers | 491116 |
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CAUTION: Do not mix cap lamp components from different manufacturer for use in applications where MSHA approval is required.

Service and Repairs

For service on all MSA lighting equipment, call 1-800-MSA-2222 or your local MSA distributor.

Power Builder® Charger Stations

MSA offers a variety of charging stations, including an AC single-unit and a 10-unit station. The 10-unit charger can be tabletop mounted, wall mounted, or stacked to convert into a multi-station charger for up to 60 stations.

The Power Builder Charger uses a microprocessor control that is efficient and never needs recalibration. It uses constant current and constant potential charging. No adjustments are required. LED colored lights let you know the condition of the battery at all times. No rectifier is required. The charger is self-contained. All AC chargers can run on 110 or 220 current.

See Bulletin 02-00-01-MC for details on all MSA Cap Lamp Systems and Accessories.



Single-unit Power Builder charger



Power Builder 10-Unit Charging Station



Power Builder 10-Unit Charging Stations are stackable. Front only or back-to back. Leg kit shown.

Power Builder Charger Stations

| | |
|-------------------------------------------------------------------|----------|
| Power Builder single-unit, AC | 10002436 |
| Power Builder 10-unit | 10002439 |
| Circuit Board Module, replacement | 10002462 |
| Transformer, replacement | 10002464 |
| Leg Assembly Kit (up to 60-station) (includes right and left leg) | 10002465 |

Note: Up to 6 ten-unit chargers can fit on one leg kit. The chargers would be set up back-to-back.

Miscellaneous Mining Equipment

Miner's Support System and Multipurpose Pouch

The Miner's Support System from MSA is a lightweight but sturdy miner's belt that offers comfort, lumbar support, versatility and durability. It enables the miner to carry the cap lamp battery pack, filter self-rescuer, SCSR, tools, etc., on the job. A one-inch reflective strip sewn over a two-inch nylon strap makes the support system highly visible.

For more complete information, see Bulletin 0115-03.



Miscellaneous Mining Equipment

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| Miner's Support System, small (28–34) | 696757 |
| Miner's Support System, medium (34–44) | 696758 |
| Miner's Support System, large (44–52) | 696759 |
| Multipurpose Miner's Pouch | 803100 |
| Multipurpose Miner's Pouch with Velcro closure | 804655 |

⚠ WARNING

The Miner's Support System cannot be used as a safety belt as it is not designed to withstand the load of a free-fall hazard.



Multipurpose Miner's Pouch

Mining and Specialty Equipment

W65 Self-Rescuer Respirator

Provides emergency protection against carbon monoxide

The W65 Self-Rescuer Respirator provides emergency respiratory protection against carbon monoxide gas resulting from underground fires or explosions. A one-time-use device for escape purposes only, it provides respiratory protection against carbon monoxide in otherwise respirable air; it should not be used in atmospheres containing less than 19.5 percent oxygen or in atmospheres containing other toxic gases and vapors. Protected by a rugged stainless steel case, it weighs only 2.2 pounds.



Approvals

The W65 Self-Rescuer Respirator is approved by the Mine Safety and Health Administration (MSHA) and the National Institute of Occupational Safety and Health (NIOSH) (Approval No. TC-14G-82) for self-rescue from carbon monoxide. (Previously assigned Bureau of Mines Approval No. 14F-76.)

For more complete information, see Data Sheet 10-00-10.



W65 Self-Rescuer with Boot and Holster

W65 Self-Rescuer Respirator

Complete Assemblies

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| W65 Self-Rescuer Respirator, complete in carton | 455299 |
| W65 Self-Rescuer Respirator, w/protective boot & neoprene holster | 461100 |

Accessories

Holster

Adapts Self-Rescuer to belts up to 2-1/2 inches in width.

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| Leather Holster | 455535 |
| Neoprene Holster | 460027 |

Protective Boot

Protective black rubber boot for Self-Rescuer.

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| Protective Boot | 449428 |
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Self-Rescuer Training Model

A special training model, which does not contain chemicals, simplifies training in the use of the W65 Self-Rescuer. After use, it can be cleaned, reassembled, and used again.

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| Training Model, in red case | 455696 |
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Escort ELF® Sampling Pump

The Escort ELF Sampling Pump can be used for personal and area sampling. The state-of-the-art electronic laminar flow sensor, consisting of a laminar flow element and pressure sensor, provides constant flow (volume) control, with $\pm 2.5\%$ regulation of flow rate (from 1 to 3 lpm) and automatic compensation for changes in battery voltage, temperature, altitude, and sample load.

An internal secondary standard calibrates the pump continuously and needs to be checked against a primary standard only once a month (or every 200 hours for coal mine dust sampling). U.S. Patent No. 5,295,790.

Approvals

Escort ELF Sampling Pumps are NIOSH-certified for coal mine dust sampling (TC-74-030). They are MSHA-certified as intrinsically safe for underground use (Approval No. 2G-3924-1). The Escort ELF pump has been approved for intrinsic safety by UL for use in Class 1, Groups A, B, C, D; Class II, Groups E, F, and G; and Class III, Division I locations.

Assemble-to Order (ATO) System: You Make the Choices

The ATO System makes it easy to custom order Escort ELF pumps, configured exactly the way you want them. Choose from an extensive line of base instrument components and accessories. See pages 94–95 or Bulletin 0810-33 ATO System and Price Information for the Escort ELF Sampling Pumps for more information.



MSA Cassettes

General-Purpose Cassette

The general-purpose cassette is a sample cassette that can be used for silica sampling. This cassette can also be used for all airborne particulate collection not limited to quartz or silica.

This cassette is individually packaged in a sealed plastic bag. Each cassette is weighed by a robot to .01 mg at 70°F +/- 5° and 45% RH +/- 10%. Each cassette is attached to a Dust Data Card which includes the cassette serial number and actual weight. The cassette inlet contains a tamper-proof deflector plate, and the outlet contains an anti-blow-back check valve. Both the inlet and outlet openings are capped to ensure cleanliness. The perimeter of the cassette housing is sealed with tamper-proof sealing tape.

Because of the extreme accuracy of the MSA weighing process, users of this cassette can sample the atmosphere for dust particulate and have the analytical analysis performed with complete confidence in its accuracy.



General Purpose Cassette

Coal-Dust Sampling

MSA's preweighed filter cassettes consist of a sealed outer plastic capsule and an inner preweighed filter capsule. Each cassette is supplied with a mine data card for the weight of the filter capsule to be recorded and sent in a mailing carton addressed to MSHA.



Coal Dust Sampling Cassette

MSA Cassettes

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| Preweighed filter cassette with 5- μ pore size PVC filter and Mine Data Card—Coal Dust Sampling | 803462 |
| General-Purpose Cassette | 711361 |

Mining Detector Tube Set

The Mining Detector Tube Set is a variety pack of various detector tubes, designed specifically for the mining industry. The set, conveniently packaged in boxes of 12 tubes, contains:

- 3 Carbon monoxide tubes
- 2 Nitrogen dioxide tubes
- 3 Nitrous fumes tubes
- 4 Natural gas/methane tubes



Mining Detector Tube Set

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| Mining Detector Tube Set | 65586 |
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Note: For information about Detector Tube Pumps, see p. 85.

Cyclone Assembly

For mine atmosphere sampling, the MSA preweighed filter cassettes must be used with a Cyclone Assembly to collect the respirable dust fraction. The 10mm diameter assembly is used to separate respirable dust particles from non-respirable dust particles.



Cyclone Assembly

Cyclone Assembly

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| Cyclone Assembly | 456243 |
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Solaris® Multigas Detector with Nitrogen Dioxide Detection

The Solaris Multigas Detector is an economical monitor providing simultaneous detection of up to 4 of the following gases: CH₄, CO, O₂, and NO₂. One of the smallest, lightest four-gas monitors on the market, the Solaris Detector is ergonomically designed and provides the best value in its class. Weighing less than 8 ounces, it is comfortable enough to be worn all day and provides reliable protection without interfering with the user's range of motion.



Encased in a rubberized armor that absorbs impact, the Solaris Multigas Detector is designed for the harshest industrial environments, with an IP 6/5 rating for superior protection against liquid and dust ingress. Easily configured to detect up to 4 gases simultaneously, the detector features a world-class triple alarm system with high-intensity, high-visibility alarm lights, an audible alarm of over 100 dB, and a strong vibrating alarm.

The versatile display features backlighting, providing exceptional contrast for easy reading in low-light conditions and from a variety of angles. An alphanumeric message bar displays commands in "plain English", easily guiding users through various instrument functions. Simple, intuitive calibration is accomplished with the push of a single button.

The Solaris Multigas Detector is powered with a rechargeable lithium ion battery that offers 14+ hours of continuous run time and outperforms other batteries in extreme environmental conditions. The battery fully recharges in under 4 hours and maintains over 80% of its original capacity after 500 recharge cycles. A charging cradle and power cord are included.

An optional powered sampling pump is contained within the sampling probe accessory. It can be used with up to 50 feet of tubing for remote sampling and includes an extensive filtering system to keep out liquid and particulate contaminants. The Solaris Multigas Detector also features an outstanding, 2-year all-inclusive warranty.

Solaris Multigas Detector with Nitrogen Dioxide Detection

MSHA-Approved Solaris Kits

All kits include a MSHA Approved Solaris with datalogging option included, calibration cap assembly and instruction manual on CD-rom.

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| 4-Gas (CH ₄ , O ₂ , CO, NO ₂) | 10070963 |
| 4-Gas (CH ₄ , O ₂ , CO, H ₂ S) | 10070857 |
| 3-Gas (CH ₄ , O ₂ , CO) | 10070859 |
| 2-Gas (CH ₄ , O ₂) | 10070962 |

Calibration Cylinders

| Pentane Standard 1.45% | Methane Standard 2.5% | 15% Oxygen | 60 ppm CO | 20 ppm H ₂ S | 10 ppm NO ₂ | 100 ppm Isobutylene | Econo-Cal (34 Liter) | RP (58 Liter) |
|---------------------------|--------------------------|------------|-----------|-------------------------|------------------------|---------------------|----------------------|---------------|
| • | | • | • | • | | | 10048280 | 10045035 |
| | • | • | • | • | | | 10048981 | 10048890 |
| | • | • | | • | | | 10048888 | 10048889 |
| | • | • | • | | | | 10058172 | 813718 |
| | • | • | • | | • | | 10049056 | 10058171 |
| | | | | | | • | 10048279 | 494450 |

Mining and Specialty Equipment

Solaris® MSHA Assemble-to-Order (ATO) Options

• To create your instrument configuration, select the instrument option code and mark them in the boxes to the right.

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| A. Datalog Options | The datalog option enables the Solaris Multigas Detector to store exposure data for easy retrieval at a later time. To download the Solaris data the MSA datalog kit (p/n 710946) must also be purchased. Datalog option is now standard. | Datalog Options Standard rechargeable instrument (includes Datalogging) Standard Alkaline instrument (includes Datalogging) | Code D B | Selection <input type="checkbox"/> <input type="checkbox"/> |
| B. Combustible Sensor Options | If a combustible gas sensor is desired, choose option "M". | Combustible Sensor Options None 0-5% CH ₄ | Code 0 M | Selection <input type="checkbox"/> <input type="checkbox"/> |
| C. Oxygen Sensor Options | To choose to have an oxygen sensor installed in your new Solaris Multigas Detector, choose selection 1. For no oxygen sensor, enter a "0". | Oxygen Sensor Options None O ₂ Sensor | Code 0 1 | Selection <input type="checkbox"/> <input type="checkbox"/> |
| D. Toxic Sensor 1 Options | To choose to have a carbon monoxide sensor installed in your new Solaris Multigas Detector, choose selection 1. For no oxygen sensor, enter a "0". | Toxic Sensor 1 Options None CO Sensor | Code 0 1 | Selection <input type="checkbox"/> <input type="checkbox"/> |
| E. Toxic Sensor 2 Options | To choose to have a hydrogen sulfide sensor installed in your new Solaris Multigas Detector, choose selection 1. For no hydrogen sulfide sensor, enter a "0". To choose to have a NO ₂ sensor installed, choose 3. For no NO ₂ sensor, choose 2. | Toxic Sensor 2 Options None (H ₂ S Sensor not installed) H ₂ S Sensor None (NO ₂ Sensor not installed) NO ₂ Sensor | Code 0 1 2 3 | Selection <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| F. Battery Charging Options | A Solaris-specific battery charger must be used to recharge the batteries in the Solaris unit. | Battery Charging Options None North American outlet-compatible | Code 0 N | Selection <input type="checkbox"/> <input type="checkbox"/> |
| G. Sampling Pump | It is now possible to combine the sampling pump and probe for the Solaris unit into one easy-to-use accessory. The pump probe is very versatile and can be attached to the Solaris instrument in seconds. The built-in Water Stop filter helps to ensure the sampling system is not contaminated with dirt and debris during use. | Sampling Pump None Universal pump probe | Code 0 1 | Selection <input type="checkbox"/> <input type="checkbox"/> |
| H. Calibration Kits | MSA provides two options for performing instrument calibration. The cost-effective Econo-Cal (34 liter) cylinder and fixed flow regulator provides an economical means to calibrate the Solaris instrument. The Model RP calibration kit also has a fixed flow 0.25 lpm regulator and provides the user with a larger capacity (58 liter) calibration gas cylinder. | Calibration Kit Options None Econo-Cal Calibration Kit Model RP Calibration Kit | Code 0 1 2 | Selection <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |

Your Model Part Number Please write in numbers from selections above in appropriate boxes and contact your Safety Products Distributor to place your order.

Selection ... **A** **B** **C** **D** **E** **F** **G** **H**
 A-SOLMSHA- - - - - - - -



For information about other instruments and accessories that could be used in mining applications, please refer to these pages:

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|--------------------------------------------|--------|
| Kwik-Draw Detector Tube Pumps | 85 |
| Galaxy Automated Test System (for Solaris) | 98-99 |
| Calibration | 98-103 |