

# PERSONAL SIZE MULTI-GAS MONITORS

## TETRA

### FEATURES

- SIMULTANEOUSLY MONITORS ONE TO FOUR GASES
- SINGLE BIG BUTTON FOR EASY OPERATION
- LOW COST, IDEAL FOR MANY APPLICATIONS
- LARGE, HIGH CONTRAST DISPLAY WITH BACKLIGHT
- BUILT-IN ELECTRIC AIR PUMP OPTION
- AUTO ZERO SELF CHECK FUNCTION
- VERY RUGGED WITH SHATTERPROOF HOUSING
- HIGHLY WATER, DUST, AND SHOCK RESISTANT
- FLOATS IN WATER AND MOST LIQUIDS
- COMPACT AND LIGHTWEIGHT DESIGN
- LOUD AUDIO ALARM AND CLEAR ULTRA BRIGHT FLASHING LEDs
- BUILT-IN VIBRATING ALARM
- BATTERY PACK LASTS LONG WITH NO MEMORY EFFECTS
- DATALOGGER OPTION WITH EASY WINDOWS SOFTWARE



Tetra monitors from one to four gases with a single button that controls all functions. A backlit "at-a-glance" display provides simultaneous viewing of all gas readings, alarm conditions, and battery life. Tetra units are very rugged despite its compact size and low weight of around one pound (500 g). The shatterproof plastic housing is over-molded with rubber and incorporates a flexible internal architecture to resist shock and vibration. The unit is water and dust resistant to IP65, floats in water, and is UL, CSA, and ATEX approved for use in hazardous areas.

Tetra gives rapid and effective warnings of the presence of gas when hazardous levels are detected. The user is alerted by extremely bright blue and red LED beacons and a powerful 90 dBA alarm. Alarm tones are adjustable to ensure easy discrimination from noisy machinery. An integral vibrating alarm is also a standard feature. Tetra is easily customized for different applications with intelligent, user-changeable sensor modules that are pre-calibrated for a wide range of gases to allow "plug and play" operation. Sensors are available for Oxygen, flammable gas and a full range of toxic gases, including all hazards commonly encountered in confined spaces.

Two versions of the instrument are available including a rechargeable unit using lithium-ion batteries for 12 hours' operation from one charge, and a version powered by three conventional AA alkaline batteries. For testing confined spaces prior to entry, Tetra can be specified with an optional built-in electric sampling pump or used with a separate manual aspirator.



**CEA Instruments, Inc.**

*"EXPERTS IN TOXIC GAS DETECTION"*

# TETRA SPECIFICATIONS

<b>WEIGHT</b>	1.1 pound (498 grams)			
<b>DIMENSIONS</b>	4.75 x 5.0 x 2.5 inches (122 x 128 x 57 mm) - Rechargeable Version 5.25 x 5.0 x 2.5 inches (134 x 128 x 57 mm) - Alkaline Version			
<b>TYPICAL GASES</b>	<table style="width: 100%; border: none;"> <tr> <td style="width: 33%; vertical-align: top;"> <b>COMBUSTIBLE GAS (%LEL)</b>  <b>OXYGEN</b>  <b>HYDROGEN SULFIDE</b>  <b>CARBON MONOXIDE</b>  <b>SULFUR DIOXIDE</b>  <b>CHLORINE</b> </td> <td style="width: 33%; vertical-align: top;"> <b>AMMONIA</b>  <b>OZONE (NON-PUMPED)</b>  <b>HYDROGEN</b>  <b>HYDROGEN CYANIDE</b>  <b>HYDROGEN FLUORIDE</b>  <b>NITROGEN DIOXIDE</b> </td> <td style="width: 33%; vertical-align: top;"> <b>PHOSGENE</b>  <b>PHOSPHINE</b>  <b>FLUORINE</b> </td> </tr> </table>	<b>COMBUSTIBLE GAS (%LEL)</b> <b>OXYGEN</b> <b>HYDROGEN SULFIDE</b> <b>CARBON MONOXIDE</b> <b>SULFUR DIOXIDE</b> <b>CHLORINE</b>	<b>AMMONIA</b> <b>OZONE (NON-PUMPED)</b> <b>HYDROGEN</b> <b>HYDROGEN CYANIDE</b> <b>HYDROGEN FLUORIDE</b> <b>NITROGEN DIOXIDE</b>	<b>PHOSGENE</b> <b>PHOSPHINE</b> <b>FLUORINE</b>
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<b>TYPICAL RESPONSE</b>	Combustibles 20 seconds; Oxygen 10 seconds; Toxic Gas 20 seconds			
<b>ALARMS</b>	Adjustable alarms set to current U.S. OSHA limits ( <i>unless specified otherwise</i> ). Two instantaneous alarm levels per channel with TWA alarm levels added for toxic gases. Audible 90 dBA at 1 foot with multiple alarm sounds that allow selection of distinctive tones for different alarm levels. Visual dual color red/blue flashing LED pair in gas hazard. Each unit is supplied with an internal vibrating alarm.			
<b>DISPLAY</b>	128 x 64 graphic LCD with backlight giving simultaneous display for all gas channels with display recall for Peak and TWA readings. Graphic symbols are displayed for battery level, pump operation, calibration information, fault and operation warnings, and more.			
<b>DATALOGGING</b>	Event logging, continuous			
<b>BATTERY</b>	Rechargeable Li-ion battery lasts 12 hours minimum between charging. Optional non-rechargeable pack uses 3 AA disposable alkaline cells for 18 hours minimum operation.			
<b>SAMPLING</b>	Internal electric air pump or hand aspirator for optional diffusion version.			
<b>TEMPERATURE</b>	-4°F to 131°F (-20°C to 55°C)			
<b>HUMIDITY</b>	0 to 99% RH			
<b>APPROVALS</b>	UL, CSA (Class 1, Div. 1, Groups A, B, C, D) and other worldwide intrinsic safety approvals.			
<b>INGRESS PROTECTION</b>	NEMA 4X (tested to IP65) - highly water resistant and dust proof.			
<b>PC INTERFACE</b>	IR link for RS232 connection (USB/RS232 Converter available). Portables PC software package provides full configuration control, calibration, and access to the Event log file.			
<b>AUTOCALIBRATOR</b>	Multiple Tetra units can be routinely calibrated quickly and simply using Autocalibrator II in conjunction with the Portables PC software. The internal pump of Autocalibrator II handles up to five different gases while a PC interface provides easy access with optional datalogging for proof of calibration.			

(Specifications subject to change without notice.)



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## TETRA PRICE LIST

Tetra units are supplied with an internal datalogger, built-in vibrating alarm, pocket clip, and operation manual as standard. Every Rechargeable version includes a Lithium Ion battery pack and 110 VAC charger. All units are prepared as the Rechargeable version (*unless the AA battery pack is specified*).

Pumped versions include built-in electric air pump, external hydrophobic filter, adapter, and tubing.

### Choose one of the below three Tetra versions.

	Pump	Battery Type	Part No	Price
Tetra (no sensors)	No	Rechargeable	<b>TET-02</b>	\$ 560.00
Tetra (no sensors)	Internal	Rechargeable	<b>TET-01</b>	\$ 635.00
Tetra (no sensors)	Internal	Alkaline	<b>TET-01/A</b>	\$ 610.00

Choose up to four of the below **i-module sensor assemblies** by adding each letter Code to the end of the above part number and by adding each Price to the base price of the Tetra version selected.

Part Number	Description	Code	Price
S011424	0-100% LEL Methane	A	\$ 178.00
S011436	0-100% LEL Propane	A (Propane)	\$ 178.00
S011437	0-100% LEL Pentane	A (Pentane)	\$ 178.00
S011439	0-100% LEL Butane	A (Butane)	\$ 178.00
S011440	0-100% LEL Ethylene	A (Ethylene)	\$ 178.00
S011460	0-100% LEL Hydrogen	A (Hydrogen)	\$ 178.00
S011741	0-100% LEL Flammable (For Alcohols, Ketones, General Solvents)	A ( <i>Specify Gas</i> )	\$ 188.00
S011423	0-25% Oxygen	B	\$ 120.00
S011422	0-500 ppm Carbon Monoxide	C	\$ 167.00
S011463	0-1500 ppm Carbon Monoxide	Hi C	\$ 167.00
S011421	0-50 ppm Hydrogen Sulfide	D	\$ 167.00
S011912	0-500 ppm Hydrogen Sulfide	Hi D	\$ 167.00
S011425	0-10 ppm Sulfur Dioxide	E	\$ 300.00
S011426	0-10 ppm Nitrogen Dioxide *	F	\$ 300.00
S011427	0-20 ppm Nitrogen Dioxide *	Hi F	\$ 300.00
S011428	0-20 ppm Chlorine *	G	\$ 263.00
S011430	0-25 ppm Hydrogen Cyanide	H	\$ 394.00
S011431	0-5 ppm Phosphine *	I	\$ 300.00
S011435	0-100 ppm Ammonia	J	\$ 503.00
S011438	0-1000 ppm Ammonia	Hi J	\$ 503.00
S011432	0-1 ppm Ozone * ( <u>Only Diffusion Versions</u> )	O	\$ 500.00
S011433	0-10 ppm Hydrogen Fluoride *	R	\$ 665.00
S011464	0-1 ppm Phosgene *	S	\$ 500.00
S011429	0-1000 ppm Hydrogen	T	\$ 416.00
S011434	0-1 ppm Fluorine *	W	\$ 416.00

\* Readily absorbed gases that will not be properly detected if an internal pump, aspirator, or hose are used.

**IMPORTANT NOTE:** Individually sold i-module sensor assemblies prices do not include the sensor seal (M04682), flexible connector (E07612), or the sensor retaining ring (M04431). These will be needed when adding i-module sensor assemblies to an existing instrument. Only the sensor seal (M04682) needs to be ordered when replacing i-module sensor assemblies.

**CSK-02** is the part number to receive the recommended **Tetra KIT Package** for **\$340.00 each**

Each KIT includes the Portables PC software with wireless IR link, chest harness, shoulder strap, and carrying (brief) case with foam inserts. Portables PC software allows unit connection to a computer for user calibration, unit re-configuration, and downloading of information stored in datalogger.



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Part Number	Description	Price
<b>Tetra Value Packs – Pumped Versions</b> (Add \$340 and part number CSK-02 for Kit Package) Includes battery charger, aspirator plate, 10' Tygon & in-line filter. The battery charger is not provided if the optional AA Alkaline Battery is specified instead of Rechargeable Battery.		
TET-01/ABCD	Pumped Rechargeable Battery Tetra with LEL/O2/CO/H2S sensors	\$ 989.00
TET-01/ABCX	Pumped Rechargeable Battery Tetra with LEL/O2/CO sensors	\$ 890.00
TET-01/ABDX	Pumped Rechargeable Battery Tetra with LEL/O2/H2S sensors	\$ 890.00
TET-01/ABXX	Pumped Rechargeable Battery Tetra with LEL/O2 sensors	\$ 740.00
TET-01/AXXX	Pumped Rechargeable Battery Tetra with LEL sensor	\$ 690.00
TET-01/ABCD/A	Pumped Alkaline Battery Tetra with LEL/O2/CO/H2S sensors	\$ 939.00
TET-01/ABCX /A	Pumped Alkaline Battery Tetra with LEL/O2/CO sensors	\$ 859.00
TET-01/ABDX /A	Pumped Alkaline Battery Tetra with LEL/O2/H2S sensors	\$ 859.00
TET-01/ABXX /A	Pumped Alkaline Battery Tetra with LEL/O2 sensors	\$ 759.00
TET-01/AXXX/A	Pumped Alkaline Battery Tetra with LEL sensor	\$ 659.00
<b>Tetra Value Packs – Non Pumped Versions</b> (Add \$340 and part number CSK-02 for Kit Package) Includes aspirator, battery charger, aspirator plate, 10' Tygon & in-line filter. The battery charger is not provided if the optional AA Alkaline battery pack is specified instead of rechargeable.		
TET-02/ABCD	Non Pumped Rechargeable Battery Tetra with LEL/O2/CO/H2S sensors	\$ 929.00
TET-02/ABCX	Non Pumped Rechargeable Battery Tetra with LEL/O2/CO sensors	\$ 830.00
TET-02/ABDX	Non Pumped Rechargeable Battery Tetra with LEL/O2/H2S sensors	\$ 830.00
TET-02/ABXX	Non Pumped Rechargeable Battery Tetra with LEL/O2 sensors	\$ 730.00
TET-02/AXXX	Non Pumped Rechargeable Battery Tetra with LEL sensor	\$ 559.00
TET-02/ABCD/A	Non Pumped Alkaline Battery Tetra with LEL/O2/CO/H2S sensors	\$ 893.00
TET-02/ABCX /A	Non Pumped Alkaline Battery Tetra with LEL/O2/CO sensors	\$ 794.00
TET-02/ABDX /A	Non Pumped Alkaline Battery Tetra with LEL/O2/H2S sensors	\$ 794.00
TET-02/ABXX /A	Non Pumped Alkaline Battery Tetra with LEL/O2 sensors	\$ 730.00
TET-02/AXXX /A	Non Pumped Alkaline Battery Tetra with LEL sensor	\$ 559.00
<b>Tetra Accessories</b>		
C01847	Aspirator assembly for non pumped units	\$ 88.00
C01846	Aspirator assembly for pumped units comes w/ 2 meters of hose	\$ 88.00
C01841	Aspirator plate and gasket (pumped only)	\$ 30.00
C01097	3 ft (1 m) Sample Probe (Stainless Steel)	\$ 107.00
C01757	Telescopic aspirator probe (Stainless Steel)	\$ 121.00
M04032B	Aspirator hose, Neoprene, per Yard (3 Feet)	\$ 9.00
M04032C	Aspirator hose, Tygon, per Foot	\$ 13.00
C01245	Water trap	\$ 275.00
C03141	18 FT drop line	\$ 41.00
C01842	Universal harness plate	\$ 41.00
C01844	Chest harness strap kit - consists of two straps	\$ 24.00
C01843	Shoulder strap	\$ 18.00
C01845	Leather Carry Case (rechargeable version)	\$ 81.00
C01888	Leather Carry Case (non-rechargeable version)	\$ 81.00
COMMS PKG	Comms interface RS232 w/Software	\$ 165.00
MIS26003	Infrared adaptor for PC, plugs into RS232 port	\$ 121.00
C02097	USB to RS232 adapter	\$ 55.00
C01832	Portables PC Software CD	\$ 55.00
C01874	Calibration Flow plate for pumped accessory kit w/ bellows	\$ 121.00
C011005	Calibration Flow plate with "T" fitting for version 9 Tetra and higher	\$ 49.50
C01975	Calibration Flow plate without "T" fitting for version 9 Tetra and higher	\$ 13.00
C01697	CROWMAG Key	\$ 29.00



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Part Number	Description	Price
<b>Tetra Battery Chargers</b>		
E01839	230V 50Hz UK Pins	\$ 105.00
E01866	110V 60Hz US Pins	\$ 105.00
E01841	230V 50Hz European Pins	\$ 105.00
C01866	230 V 50 Hz in-line charger - no plug	\$ 105.00
C01867	115 V 60 Hz in-line charger - no plug	\$ 105.00
C01879	90-260 V 50-60 Hz in-line with IEC input	\$ 209.00
C02098	Car charger	\$ 143.00
<b>Tetra Spare Parts</b>		
APP002	Plastic Aspirator probe	\$ 85.00
APP003	Replacement Filter Kit for APP002	\$ 51.00
ILF001	In Line Hydrophobic Aspirator Filter	\$ 29.00
ILF005	5 - Pack Hydrophobic Filters	\$ 114.00
C01849	Flow head Gasket non-Pumped	\$ 7.00
C01850	Flow head Gasket Pumped	\$ 7.00
C01851	Aspirator bulb	\$ 40.00
C01852	Sensor Gortex filter (Set of 2)	\$ 11.00
C01864	Strap for universal harness plate	\$ 18.00
PEL CASE CSK	Tetra carry case w/ confined space insert	\$ 99.00
E01633	Fuse 125 mA encapsulated red	\$ 10.00
E01824	Tetra LCD panel (display)	\$ 40.00
E01828	Pump	\$ 199.00
E01829	Sounder	\$ 4.07
E07612	Flexible connector	\$ 3.00
M03735	Sensor plate hex screw	\$ 1.10
M03762	Main case bolt	\$ 2.09
M04431	Sensor retaining ring	\$ 1.25
M04682	Sensor seal	\$ 3.85
M04787	Rubber sealing bung for charger socket	\$ 4.00
M04791	Sounder Gasket	\$ 1.10
M04794	Battery holder enclosure (Non-Rechargeable Versions)	\$ 6.00
M04795	Sensor plate seal	\$ 2.50
M04796	Sensor plate gasket	\$ 3.00
M04800	O-ring	\$ 3.00
M04808	Dummy sensor module (formerly C01853)	\$ 10.25
M04811	Outlet gasket	\$ 2.75
M04857	Tetra bench holder (blue tray)	\$ 33.00
M04862	Sensor cover plate (orange) no filters, no frame	\$ 22.00
M04880	Filter retaining bracket (black plastic)	\$ 4.00
M05834	Domed Crowcon label	\$ 2.00
S011330	Rechargeable Li-ion battery assembly	\$ 61.00
S011340	Main and display PCB assembly	\$ 509.30
S011394/1	Lower case assembly rechargeable (blue)	\$ 40.75
S011798/1	Lower case assembly rechargeable (orange)	\$ 40.75
S011395	Pumped sensor plate assembly	\$ 213.50
S011397	Top molding (blue)	\$ 30.50
S011799/1	Top molding (orange)	\$ 30.50
S011398	Sensor cover filter assembly (blue)	\$ 33.00
S011399/1	Lower case assembly non-rechargeable	\$ 50.50
S011406	Bag of Allen Wrenches	\$ 2.20
S011415	Battery holder	\$ 50.50

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