MADGETECH
WE BUILD DATA LOGGERS

ELEMENT CO_2

Wireless CO_2, Humidity and Temperature Data Logger

The Element CO_2 is a wireless data logger that measures and records carbon dioxide, humidity, and temperature levels in a variety of growing applications. This data logger is ideal for use in air quality studies including HVAC studies, as well as day to day monitoring of plant growing cycles.

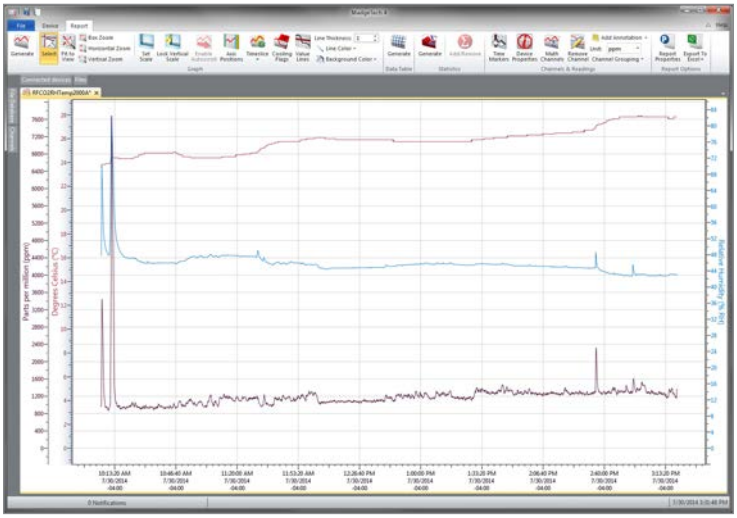
The Element CO_2 data logger comes with a 16 foot cable connected to the CO sensor, making it ideal for placement around various sized grow rooms to ensure consistent, optimum levels. The logger features an LCD screen which provides instant access to current readings, as well as minimum, maximum, and average statistics.

The device also features configurable alarms, battery life indicator, and the ability to reset statistics without impacting the data collection. The logger features a convenient wall mount, while the CO2 sensor is equipped with dual lock for easy and secure placement and effortless mobility.

By determining the levels of carbon dioxide, improvements can be made to the ventilation systems and optimum grow environments can be ensured.

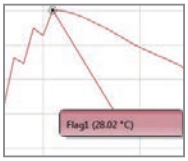
The Element CO_2 can be used as a single, wireless data logging system, or it can be expanded to a large scale system, which can include hundreds of data loggers measuring a number of areas (additional MadgeTech wireless data loggers and transceivers may be required). The Element CO_2 is compatible with the latest MadgeTech 4 Software.

MadgeTech 4 Software Features

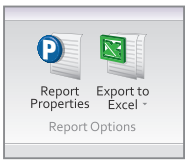


Graph View

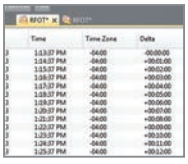
- Multiple graph overlay
- Statistics
- Digital calibration
- Zoom in/ zoom out
- Lethality equations (F0, PU)
- Mean Kinetic Temperature
- Full time zone support
- Data annotation
- Min./Max./Average lines
- Summary view



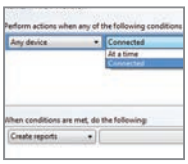
Cooling Flags



Export to Excel



Tabular Data View



Automation

Features

- Battery Life Indicator
- Digital Display
- Direct USB Interface
- AC Power connection via USB
- Configurable Alarms
- Ability to Manually Reset Statistics
- 16 Month Battery Life at 10 Minute Reading Rate

Benefits

- Digital Display Provides Instant Access to Current Readings and Statistics
- Minimal Long-Term Maintenance
- Readings Displayed in User Selected Measurement Unit
- Time and Money Saving with Battery Life Management
- Continuous Monitoring
- E-mail, Text Message and Audible Alerts Provide Assurance and Quality Control

Applications

- Incubator Monitoring
- Building Studies (hospitals, schools, offices)
- HVAC System Testing
- Agricultural Studies
- Indoor Air Quality (IAQ) Studies

SPECIFICATIONS

Specifications are subject to change without notice. Specific warranty remedy limitations apply.

CARBON DIOXIDE (CO_2)	
Measurement Range	0 ppm to 200,000 ppm
Resolution	10 ppm
Calibrated Accuracy	70 ppm ± 5% of the reading
Sensor Warm Up Time	30 seconds

TEMPERATURE	
Measurement Range	0 °C to +55 °C (+32 °F to +131 °F)
Resolution	0.08 °C (0.144 °F)
Calibrated Accuracy	±1.0 °C at +20 °C to +50 °C (±1.8 °F at 68 °F to 122 °F)

HUMIDITY	
Measurement Range	0 %RH to 95 %RH
Resolution	0.08 %RH
Calibrated Accuracy	±3 %RH
Specified Accuracy Range	25 %RH to 75 %RH +20 °C to +40 °C Hysteresis Error 1 % typical, 3 % Maximum

GENERAL	
Reading Rate	1 reading every second up to 1 reading every 24 hours
Memory	10,752 readings per channel
LED Functionality	**Green LED** blinks every 5 seconds to indicate unit is logging **Blue LED** blinks every 15 seconds to indicate unit is in wireless mode **Red LED** blinks every 1 second to indicate alarm condition
Wrap Around	Yes
Start Modes	Immediate and delay start
Calibration	Digital calibration through software
Calibration Date	Automatically recorded within device
Battery Type	9 V lithium or alkaline battery included; user replaceable with any 9 V battery
Battery Life	Approximately 16 months typical at a 10 minute reading rate
Data Format	**For Display:** mA, A **For Software:** Date and time stamped

BATTERY WARNING: BATTERY MAY LEAK, FLAME OR EXPLODE IF DISASSEMBLED, SHORTED, CHARGED, CONNECTED TOGETHER, MIXED WITH USED OR OTHER BATTERIES, EXPOSED TO FIRE OR HIGH TEMPERATURE. DISCARD USED BATTERY PROMPTLY. KEEP OUT OF REACH OF CHILDREN.

Time Accuracy	± 1 minute/month @ 25 °C
Computer Interface	USB to mini USB, 250,000 baud for standalone operation or RFC1000 required for wireless operation
Operating System Compatibility	Windows XP SP3 or later
Software Compatibility	Standard Software version 4.2.1.0 or later Secure Software version 4.2.0.0 or later
Operating Environment	0 °C to +55 °C (+32 °F to +131 °F) 0 %RH to 95 %RH non-condensing; 13.77 PSIA to 100 PSIA
Dimensions	**Data logger:** 3.0 in x 3.5 in x 0.95 in (76.2 mm x 88.9 mm x 24.1 mm) **Sensor:** 1.98 in x 1.98 in x 1.15 in (50.3 mm x 50.3 mm x 29.2 mm) **Cable Length:** 16 ft (192 in)
Material	ABS Plastic
Weight	4.9 oz (140 g)
Approvals	US (FCC), CA (IC), CE, South Korea (KCC), China (CMIIT), Japan (LCIE)
Alarm	User configurable high and low audible, on-screen, email and text (SMS) alarms. Alarm Delay: A cumulative alarm delay may be set in which the device will activate the alarm (via LED) only when the device has recorded a user specified time duration of data.
Audible Alarm Functionality	1 Beep per second for reading alarm above/below threshold

WIRELESS	
RF Frequency	2.45 GHz IEEE 802.15.4 ultra-low power wireless transceiver with fully bi-directional communication
Band	ISM band 2.405-2.475 GHz
Maximum Output Power	+0 dBm typical
Receiver Sensitivity (RFC1000)	-95 dBm typical
Transmission Distance (to data loggers)	**RFC1000, RFC1000-CE & RFC1000-IP69K** 2,000 ft max. outdoors - line of sight unobstructed 500 ft max. indoors - typical urban environment
Transmission Distance (to other RFC1000's)	**RFC1000** 4,000 ft max. outdoors - line of sight unobstructed 1,000 ft max. indoors - typical urban environment **RFC1000-CE** 2,500 ft max. outdoors - line of sight unobstructed 700 ft max. indoors - typical urban environment **RFC1000-IP69K** 4,000 ft max. outdoors - line of sight unobstructed 1,000 ft max. indoors - typical urban environment

Ordering Information

Element CO_2	PN 901391-A7	Wireless CO_2, Humidity & Temperature data logger
RFC1000	PN 901383-00	Wireless RF receiver/repeater. USB to mini USB adapter & power supply included
RFC1000-CE	PN 901338-00	Wireless RF transceiver/repeater, CE approved for Europe. USB to mini USB adapter & power supply included
RFC1000-IP69K	PN 901389-00	Wireless RF transceiver/repeater, splash proof with an IP69K rating. USB to mini USB adapter included
RFC1000 Cloud Relay	PN 901900-00	MadgeTech Cloud Services Data Logging Hub
RFC1000-CE Cloud Relay	PN 901901-00	MadgeTech Cloud Services Data Logging Hub, CE approved for Europe
U9VL-J	PN 901804-00	Replacement battery for Element CO_2

Countries approved for use, purchase and distribution of the Element CO_2: Australia, Austria, Belgium, Bulgaria, Canada, Chile, China, Colombia, Croatia, Cyprus, Czech Republic, Denmark, Ecuador, Estonia, Finland, France, Germany, Greece, Honduras, Hungary, Iceland, Ireland, Israel, Japan, Latvia, Liechtenstein, Lithuania, Luxembourg, Malaysia, Malta, Mexico, New Zealand, Norway, Peru, Poland, Portugal, Romania, Saudi Arabia, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Thailand, The Netherlands, Turkey, United Kingdom, United States, Venezuela, Vietnam

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