



**Bascom-Turner
Instruments**

Leading the Way in Safety

CCD-201

The perfect handheld instrument for
Method 21 VOC leak monitoring



BASCOM-TURNER INSTRUMENTS

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Bascom-Turner Instrument's CCD-201 is a Method 21 specific instrument capable of detecting a **full range of VOCs from 0 to 40,000 ppm**. A rugged catalytic oxidation unit, the CCD-201 exceeds all of **Method 21 Section 6** performance criteria and is a great alternative to FID or Infrared detectors.

Instrument highlights include:









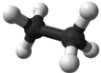



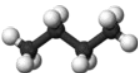

Bascom-Turner's CCD-201 is a superior instrument when compared to FID/PIDs and OGI devices typically used for LDAR within the midstream energy and Method 21 monitoring sectors. See table below for details.



Feature	FID / PID	OGI	CCD-201
Gases Detected	Range of VOC	Range of VOC	Range of VOC
Price	\$18,000 +	\$75,000 +	\$5,800
Weight	7.5 lbs.+	5.0 lbs.+	1.5 lbs.
Detection Range	0-30,000 ppm	0-100%	0-40,000 ppm
Detection Level	1 ppm	400 ppm	1 ppm
Environmental Effect	-	Background temp & condition	-
Operating Time	8-10 hours	3-4 hours	10 hours
Power Supply	Battery & H ₂ Fuel	Battery	Two C-size Batteries (NiMH)
H ₂ Fuel Required	Yes	n/a	n/a
Response Time (CH ₄)	3.5s	-	0.6s
Intrinsic Safety	Class1, Div.1	Zone 1 ATEX	Class 1, Div. 1
Warm-up Time	15 min+	10 min +	1 min
Operating Temp	-10C to 45C	-20C to 50C	-20° C to 40° C
Humidity (RH)	15 to 95%	30 to 80%	0 to 95%
GPS Standard	-	✓	✓
Bluetooth Standard	✓	✓	✓
Bluetooth Connectivity	✓	✓	✓
In-Unit Data Logging	✓	✓	✓

Engineers from Think Environmental performed side-by-side testing with the CCD-201 and an FID/PID analyzer across a number of locations, hot and cold environments, and products / streams. In all instances, nearly 1,000 tags, the CCD-201 performed favorably – the same or better than the commonly used FID/PID analyzer. Highlights are below. Contact info@thinkenvironmental.com for more information.



Environment	FID/PID	CCD-201
 <i>Isobutylene</i>	✓	
 <i>Ethylene – Cold</i>	✓	
 <i>PYGAS</i>	✓	
 <i>Ethane – Hot</i>	✓	
 <i>Gasoline</i>	✓	
 <i>Butane</i>	✓	

Calibrating the CCD-201

The CCD-201 utilizes a multi-point calibration procedure and can be calibrated with a variety of gases and concentrations depending on the specific reference compound and leak definition. The CCD-201 can be calibrated with up to six spans – including zero. Calibration is managed via the 'Calibration Setup' menu or by simply selecting the 'Edit' button from the calibration screen.

Docking or 'box' calibration is underdevelopment and should be available in 2024 or earlier.



Date	Time	LEL Sens.	LEL Sens.	GAS Sens.	GAS Sens.	CO Sens.	CO Sens.	OXYGEN Sens.	OXY Sens.	H2S Sens.	H2S Sens.	PPM Sens.	PPM Sens.
1/11/2023	11:08:00	1863	Y	4077	Y							1858	Y
1/11/2023	10:24:00	1830	Y	4301	Y							1841	Y
12/9/2022	10:05:00	2250	Y	4114	Y							1862	Y
12/2/2022	14:27:00	2805	Y	4108	Y							2594	Y
12/2/2022	9:55:00	1941	Y	4109	Y							1934	Y

DataLink4Access

Each unit automatically stores the last 24 calibrations and 3-6 months' worth of detector readings. All readings are time, mode and GPS stamped. Readings, calibration data and sensor sensitivity data can be retrieved with DataLink4Access.

Bluetooth™ Streaming & Integration

All CCD-201s come with a Bluetooth™ chip with a 10-meter range. Live unit readings can be streamed onto an iOS or Android field tablets or other devices.

Please send Bluetooth™ and data integration inquiries to Benjamin Tarshis btarshis@bascomturner.com.



The CCD-201 sensor responds to a wide range of combustible gases and the response of the sensor varies for different combustible gases. To obtain the response factor the instrument is first calibrated using methane, then a known concentration of the target gas is measured. The response factor, R_f, is then given by:

$$R_f = \frac{\text{Known Gas Concentration}}{\text{Instrument Reading}}$$

The table below provides the measured values of response factor, R_f, for different types of gases.

CCD-201 Response Factors for Common VOCs

Chemical	LEL (%)	MW	R _f
Hydrogen	4	1	0.83
Methane	5	16.04	1.00
Acetylene	2.5	26.04	1.27
Ethylene	2.7	28.1	0.75
Ethane	3	30.07	0.80
Methanol	6	32.04	1.59
Propene	2.4	42.08	0.65
propane	2.1	44.1	0.73
iso-butylene	1.8	56.11	0.64
n-Butane	1.6	58.1	0.70
n-propanol	2.2	60.1	0.78
iso-propanol	2	60.1	0.81
Ethylene Glycol	3.2	62.1	1.33
i-pentane	1.4	72.2	0.64
Neo-pentane	1.4	72.2	0.64
n-pentane	1.5	72.2	0.67
n-hexane	1.1	86.2	0.69
Toluene	1.1	92.14	0.69
n-heptane	1.05	100.2	0.66
Xylene	1	106.16	0.74
n-Octane	1	114.2	0.69
n-nonane	0.8	128.3	0.68

Bold: Measured

Italics: Predicted

CCD-201 Specifications

Each detector has a built-in pump and comes with flex probe with stainless tip (FP-821), stainless steel probe (SSP-821), pack of water-block filters (WF-905), set of NiMH batteries (NM-524) and charger (RC-502), carrying case (IC-501), rubber boot (RB-501), shoulder strap (SS-501) and operating manual. SURVEY mode in all models displays GAS as PPM.

A-CAL firmware automatically calibrates a detector using Bascom-Turner calibration gas. All readings are automatically digitized and stored in the on-board memory. DataLink4Access software, provided with each unit, can be used to download calibration data, readings, and generate reports. Each unit automatically stores the last 24 calibrations and 3-6 months' worth of detector readings. GPS and Bluetooth™ are standard on all CCD detectors. Detectors are intrinsically safe Class 1, Div. 1, Groups C&D, T4, UL913

Detailed Description & Typical Performance

Gases Detected	Combustible Gases in Air	Warm-Up Time	60 seconds
Sensors	Dual Catalytic Combustion Thermal Conductivity	Operating Temperature	-20°C to 40°C (0°F to 105°F)
Range	0 to 40,000 ppm by volume	Storage Temperature	-40°C to 60°C (-40°F to 140°F)
Response Time	0.6s for methane	Power Supply	Two C-size rechargeable Batteries (NiMH)
Accuracy (5° to 45°C)	±2% (20PPM) for PPM scale	Operating Time	10 hours, typical (25°C)
Flow Rate	0.5L/min	Humidity	0 to 95% RH (non-condensing)
Resolution	1 ppm from 0 to 40,000 ppm	Instrument Weight	1.5 lb. (0.68 kg)
GPS	Horizontal resolution 2.5m Max update rate 10Hz	Bluetooth™	Transmit Class 2, 10m range Certified to FCC regulation



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