

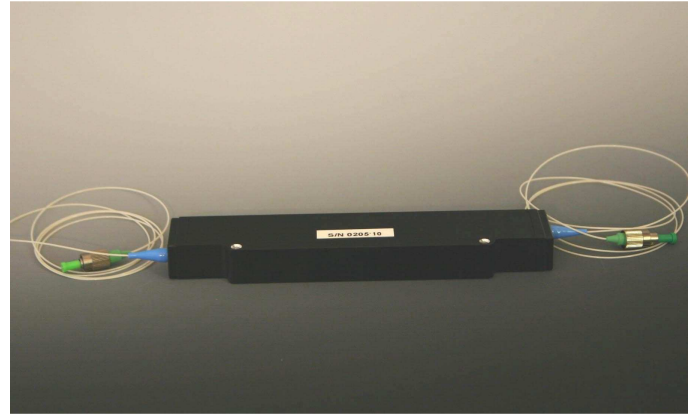
Multipass Gas Cells Carbon Monoxide, Water, Dual Gas, Tri-Gas

L-band calibrators, C+L band, S-band, or S+C+L band we offer them all.

Carbon monoxide gas absorption has been widely researched and identified by national standards bodies as a primary wavelength reference in the band 1560nm-1630nm. Water has many absorption lines in the 1330-1480nm range.

The cells feature a 80 cm absorption path in a compact multipass housing. The cells can be ordered with either isotope carbon monoxide or combined with acetylene, hydrogen cyanide, or methane to extend the calibration range. Water can also be provided which offers many absorption lines in the S-band

The cells are also offered in an instrument housing with bulkhead optical connectors which is useful for a laboratory setting for ruggedness and convenience. Up to three cells can be placed in one housing and can include our popular acetylene, HCN, or HF cell as well.



Specifications

General

Optical Path	cm	80 (5 pass design)
Optical fiber		SMF28 input and output (S option) SMF28 in multimode out (M option)
Optical insertion loss (25 degC)	dB	<3 (M option), <3.5 (S option)
Insertion loss temperature dependence 0 to 60 degC	dB	<±1 (M option), <±3 (S Option)
Optical return loss	dB	>30dB (M option), >50dB (S option)
Operating Temperature	degC	0 to 65 (+10 to 65 water cell)
Gas pressure	Torr	<700 ²
Spectral ripple	dB	<0.1 dB in any 5nm span
Cell lifetime	year	>10
Cell Size	cm	18 X 3.7 X 1.8

Carbon monoxide Lines

Wavelength Range	nm	1560-1597 carbon12 1594-1638 carbon13
Wavelength Accuracy	nm	±0.0003 (varies with line, many lines known to ±0.00001)
Temperature dependence	pm	<0.005 pm/degC
Absorption depth	dB	0.8dB one isotope present 0.4dB both isotopes present

Combination cells

¹² CO + ¹² CN	nm	1518-1595
¹² CO + ¹³ CO + ¹² CN	nm	1518-1638
¹² CO + C ₂ H ₂ + H ₂ O	nm	1330-1595
Other Combinations available		

- Specifications subject to change without notice
- Minimum linewidth at pressures <100Torr is 0.005nm. Match pressure to application for best performance

Features

- Reliable hard sealed tube, >10 year life
- AR coated optics, wedged windows for low level of interference effects
- Rugged package
- Available with fiber in/out or with built in photodiode
- Custom pressure, combination gas cell
- Extend wavelength range of gas cell to C + L band or S-band

Applications

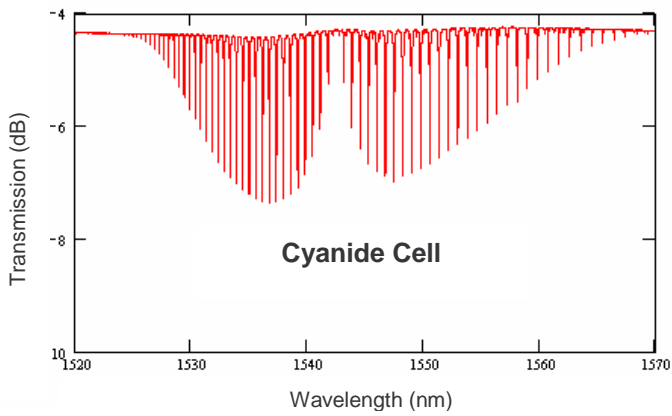
- Calibration lab source
- Embedded calibrator for tunable laser
- Embedded calibrator for OSA
- Wavelength locker

Ordering Information (example)

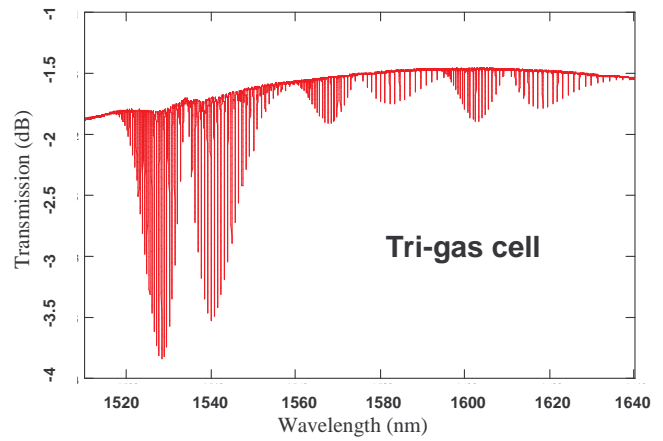
CO+HCN	-	12/12	-	S	-	200/5	-	None
Type: Carbon monoxide: CO Add HCN: CO+HCN Add C ₂ H ₂ : CO+C ₂ H ₂ H ₂ O: water		Isotope: Carbon 12: 12 Carbon 13: 13				Pressure: Torr: CO (+HCN)		Connector: FCPC FCAPC SCPC SCAPC None
				Fiber: Single mode in and out: S Single mode in multimode out: M Single mode with photodiode: SP				

Wavelength  *References*

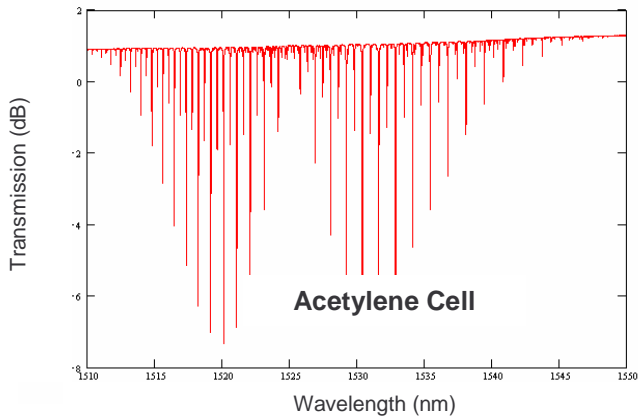
Wavelength References
14711 S Buckner Creek Rd
Mulino, OR 97042 USA
Tel: (503) 632-5240 632-5215(fax)
Email: sales@wavelengthreferences.com



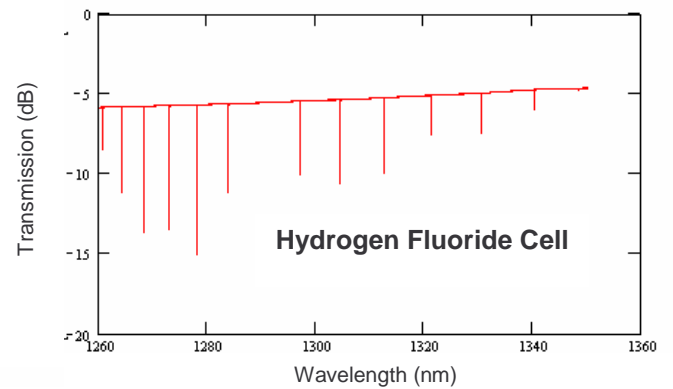
- Cyanide gas cell is SRM 2519 equivalent
- Dimensions are 18.5cm X 2.4cm X 1.3cm



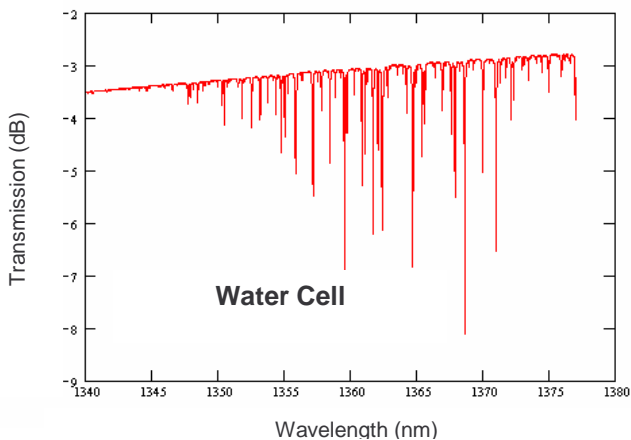
- Tri-gas cell is unique to Wavelength References. Gases are C12 hydrogen cyanide, C12 and C13 carbon monoxide
- Dimensions are 18.5cm X 3.7cm X 1.8cm



- Acetylene gas cell is SRM 2517 equivalent
- Dimensions 4.7cm X 1.4cm X 1cm



- Hydrogen Fluoride cell is unique to Wavelength References
- Dimensions 5cm X 2.4cm X 1.4cm



- Water vapor cell has lines throughout S-band from 1330 to 1500nm
- Dimensions 18.5cm X 3.7cm X 1.8cm

Gas cell spectra shown are the most popular versions but are only samples of the large array of gases that we have dealt with. In addition to fiber coupled versions we also supply bare glass tubes filled with many pure gases and gas mixtures.

We pride ourselves on the low ripple of our gas cells. Ripple is generally caused by parasitic etalons in the optical path. We use all coated wedged and tilted optics to minimize these effects as can be seen by the spectra examples.

Our cells withstand severe environmental conditions and have been tested and are used by many of the major test and measurement companies in the fiber optic industry. In addition our devices find application in university and other research and diverse sensing areas

Popular versions ordering information:

- C2H2-12-M-F-200-FCPC (200Torr fiber coupled acetylene cell)
- HCN-13-C-100-FCPC (100 Torr fiber coupled cyanide cell)
- CO+CO+HCN-12/13/12-C-150/150/5-FCPC (fiber coupled Tri-gas cell)