

Application overview

RANGE	BACKGROUND GAS	TELEDYNE INSTRUMENTS	SENSOR OPTIONS
Trace	Less than 1000 ppm CO ₂ in the background gas	311, 316, 317, 318, 3160	B-2C
		3000T series	L-2C
	More than 1000 ppm up to 100% CO ₂ in the background gas	All trace oxygen instruments	A-2C
Note: To use the A-2C or B-2C sensor in a 3000T series instrument, adapter part number B66378 is required.			
Note: The L-2C sensor cannot be used in our older analog models (300 series).			
Percent	Less than 1000 ppm CO ₂ in the background gas	311P, 320A / P / BRC, 326, 327, 328	B-1, B-3 standard; C-3 for high concentration of O ₂
	More than 1000 ppm up to 100% CO ₂ in the background gas		A-5

Selecting a Teledyne Oxygen Sensor - Detail

CLASS (click for spec control drwg.)	PART No.	APPLICATION	COMMENTS
A-1 oxygen sensor	C6689-A1	Ultra-fast response (90% in less than 4 seconds) in the percent oxygen region.	Use only when B-1 response time is insufficient.
A-2C oxygen sensor	C6689-A2C	Used for trace O ₂ measurements in CO ₂ containing backgrounds (0.1-100% CO ₂). CO ₂ must be present.	Use where acid gases are present (CO ₂ , HCl, HCN, etc). CO ₂ must be present.
A-2CXL oxygen sensor	B74033-A2CXL	Specially qualified A2C sensor to operate in XL model analyzers. Low range limit is 0-1 ppm.	Use where acid gases are present (CO ₂ , HCl, HCN, etc). CO ₂ must be present.
A-2CI: Obsolete, use A-2C			
A-3: Obsolete, use A-5			
A-5 oxygen sensor	C6689-A5	Intermittent or continuous monitoring of percent O ₂ in gas mixtures containing 0-100% CO ₂ . 90% response time is 45 seconds.	Has more tolerance to exposure to air than A-3. No restrictions on CO ₂ concentration.
B-1 oxygen sensor	C6689-B1	General purpose percent oxygen analysis where fast response is desired (90% in less than 7 seconds).	Use B-3 or C-3 where longer life is required and response time is relatively unimportant. May be used to spot check flue gas.

B-2C oxygen sensor	C6689-B2C	General purpose trace O2 analysis for use in inert gas and hydrocarbon streams. Low range limit is 0-10 ppm.	May be used in CO2 free gas streams containing highly mobile gases such as H2, He and ethylene.
INSTA TRACE oxygen sensor	B71875	Special patented construction provides rapid recovery, during initial cell installation, to low PPM levels by reducing the recovery period from several hours to just minutes. Low range limit is 0-10 ppm.	Used for trace O2 analysis in inert gas and hydrocarbon streams.
B-2CXL oxygen sensor	C6689-B2CXL	Specially qualified B-2C sensor to operate in XL model analyzers. Low range limit is 0-1 ppm.	May be used in CO2 free gas streams containing highly mobile gases such as H2, He and ethylene.
B-3 oxygen sensor	C6689-B3	Percent O2 analysis, best compromise between long life and fast response.	May be used to spot check flue gas.
B-4C oxygen sensor	C14613-B4C	Trace O2 cell specifically designed for the Model 317EXI.	Same performance as the B-2.
B-5 oxygen sensor	C45091-B5	Special application cell (non-standard) where long life and moderately fast response are required; B-5 has a factor of 3x the life of a B-3.	Requires 3x the amplifier gain of the B-3. Expected life is 36 months in air.
B-5F oxygen sensor	C45091-B5F	Special application cell (non-standard) where long life and moderately fast response, in the presence of CO2, are required.	Uses Type F (acid electrolyte). Requires higher amplifier gain than normal. 90% response time is 13 seconds. Expected life in air is 6 months.
B-7 oxygen sensor	B45091-B7	Special application cell (non-standard) where fast response is required; the B-7 has a factor of 3x the life of a B-1 cell.	Requires 3x the amplifier gain of the B-1. Expected life in air is 24 months.
B-7F oxygen sensor	B45091-B7F	Special application cell (non-standard) where moderate life and fast response, in the presence of CO2, are required.	Requires higher amplifier gain than normal. 90% response time is 7 seconds. Expected life in air is 3 months.
C-1 oxygen sensor	C6689-C1	Rarely used. Schematic for reference only.	
C-2 oxygen sensor	C6689-C2	Rarely used. Schematic for reference only.	
C-3 oxygen sensor	C6689-C3	Percent O2 measurements where maximum cell life is desired (high O2 applications).	90% response time is 30 seconds. Expected life in air is 18 months.

C-5 oxygen sensor	C45091-C5	Special application cell (non-standard) where long life is required; the C-5 has a factor of 3x the life of a C-3 cell.	Requires 3x the amplifier gain of the C-3. Expected life in air is 54 months.
C-5F oxygen sensor	C45091-C5F	Special application cell (non-standard) where long life, in the presence of CO ₂ , is required.	Requires higher amplifier gain than normal. 90% response time is 30 seconds. Expected life in air is 9 months.
C-6 oxygen sensor	C54090-C6	Motion insensitive percent O ₂ measurements for use in hand held portable monitors.	Best cell for OEM safety applications.
E-1 oxygen sensor	C14991-E1	Special cell with performance characteristic of the C-3 with 5x the life.	Cell is 2 to 3 times the length of standard MFCs; requires special mounting. Designed for medical oxygen concentrators.
E-2 oxygen sensor	C57283-E2	Long life cell for use is the Model 3290 (for use in unattended air liquefaction nitrogen skids).	Has a 3 to 4 years expected life in air. Minimum range 0-1000 ppm.
F-1R	C40371-F1R	0-1000 ppm CO in Air	Used in Max 5 and 9950 Portable Combustion Analyzers
F-3	C55194-F3	Rarely used. Schematic for reference only.	
INSTA TRACE - CO₂	B73016	Special patented construction provides rapid recovery, during initial cell installation, to low PPM levels by reducing the recovery period from several hours to just minutes. Used for trace O ₂ measurements in CO ₂ containing backgrounds (0-100% CO ₂) in the 3000T analyzer series.	Use where acid gases are present (CO ₂ , HCl, HCN, etc). CO ₂ must be present. The INSTA TRACE Micro-fuel Cell oxygen sensor is capable of measuring below 1 ppm of oxygen within 15 minutes of installation.
INSTA TRACE - XL oxygen sensor	B73592	Special patented construction provides rapid recovery, during initial cell installation, to low PPM levels by reducing the recovery period from several hours to just minutes. Specially qualified sensor to operate in XL model analyzers with a low range limit of 0-1 ppm.	Used for trace O ₂ analysis in inert gas and hydrocarbon streams.
K-1 oxygen sensor	C43832-K1	Smallest Micro-fuel Cell, for use in applications where small size or multiple sensing requirements exist.	OEM applications; PC board mountable.
K-2: Obsolete			
L-2C oxygen sensor	C6689-L2C	Used for general purpose trace oxygen analysis in the 3000T analyzer series.	Has a 2 year expected life.
L-2CXI	C6689-	Specialty qualified L2C sensor to be	May be used in CO ₂ free gas

oxygen sensor	L2CXL	used in 3000XL analyzer series. Low range limit is 0-1 ppm.	streams containing highly mobile gases such as H ₂ , He and ethylene.
L-2CI oxygen sensor	C6689-L2CI	Used in the Model 3000T series for trace O ₂ measurements; use only in CO ₂ and H ₂ background mixtures (e.g. inert gas generators).	CO ₂ concentration should be within +/-20% about some nominal concentration.
S-2C oxygen sensor	C6689-S2C	Trace oxygen cell for use in TurbO ₂ analyzer. Provides rapid recovery from air calibration (approximately 20 minutes).	Low range limit is 0-100 ppm. Has three pin contact system.
Z-2C oxygen sensor	C6689-Z2C	Has the same features as the S-2, except configured for use in the Model 3190.	Low range limit is 0-100 ppm. Has normal Micro-fuel Cell contact plate.

Storage Recommendations for Micro-Fuel Cells

After the Micro-fuel Cell barrier bag is sealed, the sensor (cell) continues to react with the oxygen inside the bag.

Eventually, all of the oxygen is consumed and the cell remains in an inert oxygen-free atmosphere until the bag is opened.

The barrier bag transmits negligible amounts of oxygen and other gases, and almost no moisture. Thus the cell can be stored for periods up to 6 months and still provide 90% or better of its expected life when finally placed into use.

Loss of sensor life in storage can be minimized by following a number of practical stocking procedures.

- 1) Never remove the cell from the barrier bag until the cell is ready to be used.
- 2) Store the sealed cell in a cool storage chamber. Storage temperature can be room temperature or below. A range of 10 to 22 Celsius is satisfactory.
- 3) Avoid any prolonged storage in warm or dry environments. Do not store the cells in an area that is exposed to direct sunlight.
- 4) Maintain careful records of the serial numbers for cells put into stock and for those supplied out of stock. Cells should be supplied from stock on a first-in, first-out basis.
- 5) Schedule stock cell orders to coincide with the expected need and thereby minimize cell storage periods. Although it is possible to store the cells for reasonably long periods and still maintain cell life, it is advisable to exercise strict discipline in this matter. For instance, set a stock period target of three months. By setting a goal to turn over stock every three months, cell life will be maximized and warranty issues minimized.