



Instruction Manual

Model # CS41

2 Electrode Conductivity Sensor



TABLE OF CONTENTS

FEATURES.....	3
APPLICATION NOTES	3
STANDARD SPECIFICATIONS.....	4
ORDERING MATRIX	5
STANDARD DRAWINGS.....	6

FEATURES

- Direct Measurement in Process Temperatures up to 205°C
- Double O-Ring Sealed for High Reliability
- Boiler Condensate and Blowdown Control without Coolers


APPLICATION NOTES

- Wetted materials of construction are 316 Stainless Steel and PEEK
- Sensors are double sealed with EPDM O-Rings for maximum reliability compared to those with single seal or Epoxy Encapsulation
- Process connection is made with $\frac{3}{4}$ " NPT male thread
- Cell constants from 0.05 to 2.0 are available, covering the ranges of interest in most Boiler Related Applications
- Temperature compensation elements are available to interface with most analyzer brands.

STANDARD SPECIFICATIONS

Max Pressure/Temperature Ratings:	250 PSIG @ 205°C 500 PSIG @ 100°C
Wetted Materials:	
Electrodes:	316 SS
Insulator:	PEEK
O-Rings:	EPDM
Constants:	2.0/1.0/0.1/0.05
Connections:	
Process:	3/4" MNPT
Electrical	3/4" FNPT conduit hub; terminal strip to accept stripped leads, 14-24 ga.
Temperature Compensation:	PT100, PT1000 and 8550Ω Others available upon request.

ORDERING MATRIX

High Pressure / Temperature 2 Electrode Conductivity Sensor 250 PSIG @ 205°C - 500 PSIG @ 100°C (Drawing 2P0072)						
CS41	SS 316 / PEEK 3/4" MNPT Inline Sensor					
Cell Constant (True range is analyzer/electrode size dependant)						
	2	2.00 (0-30,000 MicroSiemens)				
	1	1.00 (0-20,000 MicroSiemens)				
	0.1	0.10 (0-1000 MicroSiemens)				
	0.05	0.05 (0-500 Microsiemens)				
Pressure / Temperature Option						
	HT	High Temp. 0°C to 205°C, PEEK Insulator				
Integral Temperature Compensation						
	HW	8550 Ohm @ 25°C (Honeywell)				
	Pt100	100 Ohm @ 0°C, PTC (BAT and Others)				
	Pt1000	1000 Ohm @ 0°C, PTC (BAT and Others)				
	(Blank)	Other				
		1	1.0" Insertion depth (standard)			
Cable						
	JB	Junc Bx, Expl Proof, Inc 8" Ids & Term Strip				
	PT	8" Pig Tail, for Cust Supp Junc Bx Inc Term Strip				
	(Blank)	Other, (Call Factory For Price & Availability)				
CS41	0.1	HT	PT100	1	JB	

STANDARD DRAWINGS

MAX. PRESSURE/TEMP. RATINGS: 250 PSIG @ 205°C, 500 PSIG @ 100°C
AVAILABLE CELL CONSTANTS: 2.0 / 1.0 / 0.1 / 0.05

PEEK INSULATOR,
PT100, PT1000 & 8550Q.- TEMPERATURE COMPENSATION,
OTHERS AVAILABLE UPON REQUEST

316 SS ELECTRODES
WITH DOUBLE EPDM
O-RING SEALS

3/4" MNPT

1.0"

3.84" Ø

3/4" FNPT
CONDUIT PORT

HIGH TEMP TERMINAL INSIDE,
SUPPORTS 14-24 AWG LEADS

SCREW-CAP JUNCTION BOX, WEATHER PROOF,
CL.I, GR, C, D AND CL.II, GR, E, F, G EXPLOSION-PROOF,
ALUMINUM POWDER-COATED HOUSING

WIRING SCHEME	
COLOR	DESCRIPTION
BLACK	INNER ELECTRODE
WHITE	OUTER ELECTRODE
RED	TC ELEMENT
GREEN	TC ELEMENT

REV. DATE	REACTIVATE	WC F.M.L.
	DESCRIPTION	D.W.N. A.P.V.D.
	REVISIONS	
MATERIAL DESCRIPTION		
PART NO.		
FOR		
CS41 APPLICATIONS		
DIMENSIONS IN INCHES		
TOLERANCES		
.00 ± .005"		
.00 ± .010"		
.00 ± .005"		
FRACTIONAL ALL ± .015"		
UNLESS STATED OTHERWISE SPECIFIED		
DATE	SCALE	SHEET
03/19/2012	1:1	1 OF 1

DIMENSIONS IN INCHES		PART NO.	
TOLERANCES		CS41 2 ELECTRODE CONDUCTIVITY SENSOR	
.00 ± .005"		HIGH PRESSURE / TEMPERATURE	
.00 ± .010"		FOR	
.00 ± .005"		CS41 APPLICATIONS	
FRACTIONAL ALL ± .015"			
UNLESS STATED OTHERWISE SPECIFIED		ANALYZER TECHNOLOGY, LLC O'BRIEN 6200 Conover Drive, Carson City, NV 89706 PH: 795-882-2800 FAX: (775) 927-4740 DRAWING NO. 2P0072 DRAWN BY: WJ. COWAN ECO DATE: 03/19/2012 SCALE: 1:1 SHEET: 1 OF 1	

LIMITED WARRANTY

1. Limited Warranty. Barben Analyzer Technology, LLC (BAT) offers a limited warranty on each of its products against failure due to defects in material and workmanship for a period ending the earlier of (i) fifteen (15) months from the date of the invoice relating to the sale of the product and (ii) twelve (12) months from the date of installation of the product (collectively, the "Initial Warranty"). During the Initial Warranty, BAT offers a limited warranty against failure due to defects in material and workmanship on each part of a product repaired or replaced by an authorized service person for a period ending the later of (a) the remaining term of the Initial Warranty of the product and (b) ninety (90) days from the date of such repair or replacement. After expiration of the Initial Warranty, BAT offers a limited warranty against failure due to defects in material and workmanship on each part of a product repaired or replaced by an authorized service person for a period ending ninety (90) days from the date of such repair or replacement. BAT further offers a limited warranty that the products and parts it sells will conform to BAT's written specifications therefore. The foregoing limited warranties cover parts and labor only and BAT does not warrant and will not reimburse the buyer of its products ("Buyer") for any costs relating to the access by service persons of BAT to the product at issue. The foregoing limited warranties cover only the repair or replacement of defective parts and such determination will be in the sole discretion of BAT. In its sole discretion, BAT may make repairs or replacements under these limited warranties with either new or refurbished parts. To the extent Buyer's product cannot be remedied under these limited warranties through repair or replacement of parts, Buyer may return the product for a refund of the purchase price, less a reasonable reduction in such purchase price equal to the depreciation expense incurred by Buyer relating to such product. The limited warranties of this Section I.1. are further subject to those warranty exclusions set forth below in Section I.2.

2. Limited Warranty Exclusions. Excluding the warranties provided for in Section I.1., BAT provides all products to Buyer "as-is," without any other warranty of any kind. BAT disclaims any and all express or implied warranties of merchantability, fitness for a particular purpose and non-infringement of the intellectual property of others. BAT makes no warranty, express or implied, as to the design, sale, installation or use of its products. BAT's warranties will not be enlarged by, nor will any obligation or liability of BAT arise due to BAT providing technical advice, facilities or service in connection with any product. There is no warranty by BAT with respect to any product's: (i) uninterrupted or error-free operation; (ii) actual performance, other than the product's capability to meet BAT's specifications therefore; (iii) removal or installation from a worksite or process; (iv) electronic components or associated accessories (including without limitation circuit boards and integrated circuits); (v) maintenance (including without limitation gasket and seal replacements, adjustments, minor repairs and other inspection requirements, preventative or otherwise); (vi) use under inappropriate conditions or not in accordance with operating instructions; or (vii) use in connection with the operation of a nuclear facility. There is no warranty for labor expenses associated with field repairs or the repair or replacement of defective parts in the engine or power unit of any product if such product has been in the possession of the owner or operator for greater than twelve (12) months. There is no warranty for products determined to be, in BAT's sole discretion, damaged as a result of (a) misuse, neglect or accident; (b) improper application, installation, storage or use; (c) improper or inadequate maintenance or calibration; (d) operation outside of the published environmental specification; (e) improper site preparation or maintenance; (f) unauthorized repairs or replacements; (g) modifications negligently or otherwise improperly made or performed by persons other than BAT; (h) Buyer-supplied software or supplies; (i) use in conjunction with or interfacing with unapproved accessory equipment; (j) use of ABC-style or dry powder fire suppression agents; or (k) leaked sample materials. To the extent a BAT product is used in connection with the operation of a nuclear power facility, Buyer agrees to indemnify and hold BAT harmless from any and all actions, claims, suits, damages and expenses arising from such use. BAT provides no warranty on the oral representations made by its personnel while they are attempting to assist Buyer in the operation of a product. This Standard Limited Warranty does not apply to items consumed by the products during their ordinary use, including but not limited to fuses, batteries, paper, septa, fittings, screws, fuses, pyrolysis, dryer or scrubber tubes, sample boats, furnaces or UV lamps.

3. Non-BAT Products. BAT does not in any way warrant products it does not manufacture except to the extent the warranty of the manufacturer of the product at issue passes through or is otherwise assigned to BAT. If a manufacturer warranty is so assigned to BAT, BAT will only be bound to comply with the length of time associated with such warranty. All other terms of such warranty will be governed by this Standard Limited Warranty and BAT's General Terms and Conditions incorporated herein by reference.
4. Expenses on Non-Warranty Work. All repairs or replacements by BAT after the expiration of any applicable limited warranty period will be performed in accordance with BAT's standard rate for parts and labor. Further, if upon BAT's inspection and review, BAT determines the condition of the products is not caused by a defect in BAT's material and workmanship, but is the result of some other condition, including but not limited to damage caused by any of the events or conditions set forth in Section 1.2., Buyer shall be liable for all direct expenses incurred by BAT to conduct the inspection and review of the product.
5. Exclusive Remedy. The foregoing limited warranty constitutes Buyer's exclusive remedy with respect to products sold by BAT and BAT's liability shall be exclusively limited to the written limited warranty specified herein. No employee, Representative or agent of BAT is authorized to either expressly or impliedly modify, extend, alter or change any of the limited warranties expressed herein to Buyer.
6. Procedure and Costs. All limited warranty claims must be made in writing promptly following discovery of any defect. Buyer must hold defective products for inspection by BAT. If requested by BAT, Buyer must send the product to BAT for inspection. Any such returns by Buyer will be at Buyer's expense and Buyer will remain liable for any loss of or damage to the product during such product's transportation to BAT. No products will be sent to BAT for inspection unless BAT has authorized Buyer to do so.
7. Terms and Conditions. BAT's General Terms and Conditions are incorporated herein by reference and Buyer accordingly agrees to be bound by the terms thereof.

II. Limitations on BAT Liability

1. In General. Buyer agrees BAT shall not be liable for any direct, indirect, incidental, punitive or consequential damages, including lost profits, lost savings or loss of use, whether Buyer's claim is based in contract, tort, warranty, strict liability or otherwise, which Buyer may suffer for any reason, including reasons attributable to BAT. Buyer agrees these limitations on BAT's liability are reasonable and reflected in the amounts charged by BAT for its products.
2. Force Majeure. This Standard Limited Warranty does not cover and BAT shall not be liable for either direct or consequential damage caused, either directly or indirectly, as a result of: (i) any act of God, including but not limited to natural disaster, such as floods, earthquakes, or tornadoes; (ii) damages resulting from or under the conditions of strikes or riots, war, damages or improper operation due to intermittent power line voltage, frequency, electrical spikes or surges, unusual shock or electrical damage; or (iii) accident, fire or water damage, neglect, corrosive atmosphere or causes other than ordinary use.
3. Limitation on Warranty Claims. Prior to any obligation of BAT to perform any limited warranty service as set forth herein, Buyer must have: (i) paid all invoices to BAT in full, whether or not they are specifically related to the product at issue; and (ii) notified BAT of the limited warranty claim within sixty (60) days from the date Buyer knew or had reason to know of the defect.