

British Approvals Service for Electrical  
Equipment in Flammable Atmospheres



## Certificate of Conformity

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BAS No. Ex 97D2268X

3 This certificate is issued for the electrical apparatus:

**MODEL 3081T TOROIDAL CONDUCTIVITY TRANSMITTER**

4 Manufactured and submitted for certification by:

**ROSEMOUNT ANALYTICAL INC**  
of 2400 Barranca Parkway, Irvine, CA 92714-5018, USA

5 This electrical apparatus and any acceptable variation thereto is specified in the Schedule to this Certificate and the documents therein referred to.

6 BASEEFA being an Approved Certification Body in accordance with Article 14 of the Council Directive of the European Communities of 18 December 1975 (76/117/EEC) certifies that the apparatus has been found to comply with harmonised European Standards:

**EN50 014 (1977) + Amd 1 to 5**  
**EN50 020 (1977) + Amd 1 to 5**

and has successfully met the examination and test requirements recorded in confidential Report number:

**97(C)0358 dated 14 January 1998**

7 The apparatus marking shall include the code:

**EEx ia IIC T5 or EEx ia IIC T4 (T<sub>amb</sub> = -20°C to +65°C)**

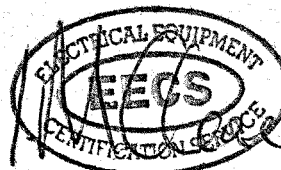
8 The manufacturer of the electrical apparatus referred to in this certificate, has the responsibility to ensure that the apparatus conforms to the specification laid down in the Schedule to this certificate and has satisfied routine verifications and tests specified therein.

9 This apparatus may be marked with the Distinctive Community Mark specified in Annex II to the Council Directive of 16 January 1984 (Doc 84/47/EEC). A facsimile of this mark is printed on sheet 1 of this certificate.

File No: EECS 0911/02/017

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This certificate is granted subject to the general conditions of the Electrical Equipment Certification Service. It does not necessarily indicate that the apparatus may be used in particular industries or circumstances. Representation of equipment as "Certified" is valid only when the number of this certificate is given on the relevant EECS Manufacturing Licence or Verification Certificate.



I M CLEARE  
DIRECTOR  
17 March 1998



Registration Number  
020  
The use of the Accreditation  
Mark indicates accreditation in  
respect of those activities  
covered by the accreditation  
certificate number 020.

  
**HSE**  
Health & Safety  
Executive

**Electrical Equipment Certification Service**  
Health and Safety Executive  
Harpur Hill, Buxton, Derbyshire. SK17 9JN. United Kingdom  
Tel: 01298 28000 Fax: 01298 28244



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**APPARATUS DESCRIPTION**

The **Model 3081T Toroidal Conductivity Transmitter** is designed to measure the conductivity and the temperature of liquid solutions. It converts inputs from external sensors into a 4-20mA loop signal or optionally a 0-1mA loop signal.

The Transmitter comprises an electronic assembly consisting of three printed circuit boards (PCBs), Analog Board, CPU Board and the Display Board, housed in a cylindrical enclosure made from machined metal casting. The enclosure has a central partition to form two compartments. Both compartments are fitted with screw-on covers. One compartment houses the terminals for external connections and the other houses the electronic assembly and is fitted with a glass display cover.

The **Model 81T Toroidal Conductivity Transmitter** is a variant to the Model 3081T, both use identical circuits but different terminal designations. The electronic assembly in the Model 81C uses identical CPU and Display Boards, however the Analog Board is made to an alternative design.

The **Model 81T Toroidal Conductivity Transmitter** is housed in an alternative enclosure which is also made from machined metal casting. The front face of the enclosure forms a door with plastic display window. The electronic assembly is mounted to the door behind the display window and is enclosed within a metal RFI/EMI shield. External connections are made through gland entries at the bottom of the enclosure, to the terminals on the electronic assembly.

**Input Parameters**

Model 3081T, Terminals TB1 connections 14, 15 & 16

Model 81T, Terminals TB2 connections 3, 4 & 5

$U_i = 30$  volts

$I_i = 200$ mA

$P_i = 0.90$ W

$C_i = 0$

$L_i = 0$



**Certificate of Conformity BAS No. Ex 97D2268X**

**DRAWINGS**

<u>Number</u>	<u>Issue</u>	<u>Date</u>	<u>Description</u>
2400297 Sheets 1 and 2	AB	04.25.97	Circuit diagram, analog board, Model 3081
43081C30	A	02.05.98	General assembly, Models 3081T and 3081C
40008120	A	02.05.98	General assembly, Models 81T and 81C
#23540-00/01	F	02.26.97	Front panel, models 81T and 81C
23650-00/02	AD	11.13.97	Sub-assembly, analog board, Model 3081
33437-00	F	01.27.97	PCB, analog board, Model 3081
33437-00	F	01.27.97	PCB track comp side, analog board, Model 3081
33437-00	F	01.27.97	PCB ground plane, analog board, Model 3081
33437-00	F	01.27.97	PCB power plane, analog board, Model 3081
33437-00	F	01.27.97	PCB track solder side, analog board, Model 3081
2400321 Sheets 1 and 2	D	10.20.97	Circuit diagram, analog board, Model 81
23687-00/01 Sheets 1 and 2	D	10.20.97	Sub-assembly, analog board, Model 81
33477-00	C	03.13.97	PCB, analog board, Model 81
33477-00	C	03.07.97	PCB top silk, analog board, Model 81
33477-00	C	03.07.97	PCB track comp side, analog board, Model 81
33477-00	C	03.07.97	PCB ground plane, analog board, Model 81
33477-00	C	03.07.97	PCB power plane, analog board, Model 81
33477-00	C	03.07.97	PCB track solder side, analog board, Model 81
23641-02/04	B	11.17.97	PCB assembly, CPU
9080138 Sheets 1 and 2	A	04.05.96	Transformer, analog board
9080140 Sheets 1 and 2	A	04.30.96	Transformer, CPU board
1700300 Sheets 1 to 3	A	05.05.97	General assembly, toroidal sensors
*23424-00 thru 03	C	07.02.96	Sub-assembly, flanged version



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<u>Number</u>	<u>Issue</u>	<u>Date</u>	<u>Description</u>
*23153-00/01	J	03.14.97	Sub-assembly, model 222/1054
*11186-00 thru -09 Sheets 1 to 3	U	08.25.95	Assembly, model 225
*11276-00 thru -10 Sheets 1 to 7	R	03.21.97	Assembly, model 226
*228 Sheets 1 to 8	D	03.21.97	Assembly, model 228
*9080077 thru 80	L	02.09.93	Toroid, models 221-222-224
*9080047	D	04.06.92	Toroid core
*9080054	D	05.28.96	Toroid, XFMR 1
*9080058	C	05.28.96	Toroid, XFMR 2
*9080105 thru 9080114	G	05.21.93	Toroid, model 226
*9080117	C	05.23.96	Toroidal core
*23148-01/02	R	03.21.93	Sub-assembly, short model 225
*23152-00	D	03.19.97	Cable sub-assembly, model 1054T
*9200245	F	04.06.92	Cable, two coaxial
9241261-00 Sheet 1 of 2	A	02.04.98	Label, model 3081T
9241286-00 Sheet 1 of 2	A	01.28.98	Label, warning
9241263-00 Sheet 1 of 2	A	01.28.98	Label, model 81T
#2400295 Sheets 1 & 2	AD	02.28.97	Circuit, CPU
#33427-00	F	02.28.97	PCB details, CPU
#33427-00	F	02.28.97	PCB top silk screen, CPU
#33427-00	F	02.28.97	PCB track comp side, CPU
#33427-00	F	02.28.97	PCB ground plane, CPU
#33427-00	F	02.28.97	PCB power plane, CPU
#33427-00	F	02.28.97	PCB track solder side, CPU
#33427-00	F	02.28.97	PCB bottom silk screen, CPU
#2400293	AD	03.06.97	Circuit, Display
#23638-00	AC	05.12.97	PCB assembly, Display
#23638-01	B	04.17.97	PCB assembly, Display
#33423-00	E	01.21.97	PCB details, Display
#33423-00	E	01.21.97	PCB top silk screen, Display



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<u>Number</u>	<u>Issue</u>	<u>Date</u>	<u>Description</u>
#33423-00	E	01.21.97	PCB track comp side, Display
#33423-00	E	01.21.97	PCB ground plane, Display
#33423-00	E	01.21.97	PCB track internal layer, Display
#33423-00	E	01.21.97	PCB track solder side, Display
#33423-00	E	01.21.97	PCB bottom silk screen, Display

\* These drawings are common to and held with Certificate No. Ex97D2017X.

# These drawings are common to and held with Certificate No. Ex97D2494/1.

**SPECIAL CONDITIONS FOR SAFE USE**

1. The Model 3081T Conductivity Transmitter comprises two separate but interconnected units. Neither unit must be connected to any other unit with the exception of a barrier device which has been approved for that purpose and may be connected to terminals 14, 15 & 16 of terminal block TB1.
2. The Model 81T Conductivity Transmitter comprises two separate but interconnected units. Neither unit must be connected to any other unit with the exception of a barrier device which has been approved for that purpose and may be connected to terminal block TB2.
3. The screen of the interconnecting cable may be connected to the frame of the apparatus. This must be taken into consideration when installing the apparatus.
4. The wiring within the terminal chamber of the Model 3081T must be adequately insulated to give at least 0.5mm solid insulation between the cores connected to terminals 14, 15 & 16 of TB1 and any other cores.
5. The wiring within the terminal chamber of the Model 81T must be adequately insulated to give at least 0.5mm solid insulation between the cores connected to terminals 3, 4 & 5 of TB2 and any other cores.

**VARIATION ONE**

To permit the use of alternative sensors thus forming the Model 3081C Contacting Conductivity Transmitter and the Model 81C Contacting Conductivity Transmitter.

The input parameters are not affected.

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## Schedule

Certificate of Conformity BAS No. Ex 97D2268X

### DRAWINGS

<u>Number</u>	<u>Issue</u>	<u>Date</u>	<u>Description</u>
1700301 Sheets 1 to 3	A	05.05.97	General assembly, contacting sensors
150 Sheets 1 to 4	B	07.21.97	Assembly, model 150
*400 Sheets 1 to 4	D	03.21.97	Assembly, model 400
*400-60 Sheets 1 to 3	C	03.21.97	Assembly, model 400 series
*401-14A Sheets 1 and 2	C	03.21.97	Assembly, model 400 series
*23729-00/07 Sheets 1 and 2	B	03.14.97	Sub-assembly, model 140
*140	L	11.27.96	Assembly, model 140
*23751-00/02 Sheets 1 and 2	A	03.21.97	Sub-assembly, cell element
9241260-00 Sheet 1 of 2	A	02.04.98	Label, Model 3081C
9241235-00 Sheet 1 of 2	A	01.28.98	Label, Model 81C

\* These drawings are common to and held with Certificate No. Ex97D2017X.

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#### BASEEFA List Keywords

2CONDMEA