

Dual Input Toroidal Analyzer

Model Option 1055-21-31

For additional information, please refer to the Instruction Manuals CD shipped with this product, or visit our website at www.emersonprocess.com/raihome/liquid/.

ESSENTIAL INSTRUCTIONS

READ THIS PAGE BEFORE PROCEEDING!

Your purchase from Rosemount Analytical, Inc. has resulted in one of the finest instruments available for your particular application. These instruments have been designed, and tested to meet many national and international standards. Experience indicates that its performance is directly related to the quality of the installation and knowledge of the user in operating and maintaining the instrument. To ensure their continued operation to the design specifications, personnel should read this manual thoroughly before proceeding with installation, commissioning, operation, and maintenance of this instrument. If this equipment is used in a manner not specified by the manufacturer, the protection provided by it against hazards may be impaired.

- Failure to follow the proper instructions may cause any one of the following situations to occur: Loss of life; personal injury; property damage; damage to this instrument; and warranty invalidation.
- Ensure that you have received the correct model and options from your purchase order. Verify that this manual covers your model and options. If not, call 1-800-854-8257 or 949-757-8500 to request correct manual.
- For clarification of instructions, contact your Rosemount representative.
- Follow all warnings, cautions, and instructions marked on and supplied with the product.
- Use only qualified personnel to install, operate, update, program and maintain the product.
- Educate your personnel in the proper installation, operation, and maintenance of the product.
- Install equipment as specified in the Installation section of this manual. Follow appropriate local and national codes. Only connect the product to electrical and pressure sources specified in this manual.
- Use only factory documented components for repair. Tampering or unauthorized substitution of parts and procedures can affect the performance and cause unsafe operation of your process.
- All equipment doors must be closed and protective covers must be in place unless qualified personnel are performing maintenance.
- If this equipment is used in a manner not specified by the manufacturer, the protection provided by it against hazards may be impaired.



WARNINGS

RISK OF ELECTRICAL SHOCK

- ☐ Equipment protected throughout by double insulation.
- Installation of cable connections and servicing of this product require access to shock hazard voltage levels.
- Main power and relay contacts wired to separate power source must be disconnected before servicing.
- Do not operate or energize instrument with case open!
- Signal wiring connected in this box must be rated at least 240 V.
- Non-metallic cable strain reliefs do not provide grounding between conduit connections! Use grounding type bushings and jumper wires.
- Unused cable conduit entries must be securely sealed by non-flammable closures to provide enclosure integrity in compliance with personal safety and environmental protection requirements. Unused conduit openings must be sealed with NEMA 4X or IP65 conduit plugs to maintain the ingress protection rating (NEMA 4X).
- Electrical installation must be in accordance with the National Electrical Code (ANSI/NFPA-70) and/or any other applicable national or local codes.
- Operate only with front and rear panels fastened and in place over terminal area.
- Safety and performance require that this instrument be connected and properly grounded through a three-wire power source.
- Proper relay use and configuration is the responsibility of the user.

CAUTION

This product generates, uses, and can radiate radio frequency energy and thus can cause radio communication interference. Improper installation, or operation, may increase such interference. As temporarily permitted by regulation, this unit has not been tested for compliance within the limits of Class A computing devices, pursuant to Subpart J of Part 15, of FCC Rules, which are designed to provide reasonable protection against such interference. Operation of this equipment in a residential area may cause interference, in which case the user at his own expense, will be required to take whatever measures may be required to correct the interference.

WARNING

This product is not intended for use in the light industrial, residential or commercial environments per the instrument's certification to EN50081-2.

SPECIFICATIONS - General

Case: ABS (panel mount), polycarbonate (surface/pipe mount). All versions are NEMA 4X/CSA 4 (IP65).

Dimensions

Panel (code -10): 6.10 x 6.10 x 3.72 in. (155 x 155 x 94.5 mm)

Surface/Pipe (code -11): 6.23 x 6.23 x 3.23 in. (158 x 158 x 82 mm); see page 5 for dimensions of pipe mounting bracket.

Conduit openings: Accepts PG13.5 or 1/2 in. conduit fittings

Display: Two line, 16-character, back-lit display. Character height: 4.8 mm. Display can be customized to meet individual requirements. Depending on number of sensors, as many as 14 display screens are available.


Ambient temperature and humidity: 0 to 50°C, (32 to 122°F) RH 5 to 95% (non-condensing)

Note: The analyzer is operable from -20 to 60°C (-4 to 140°F) with some degradation in display performance.

Power:

Code -01: 115/230 Vac ±15%, 50/60 Hz ±6%, 8.0W
Code -02*: 24 Vdc ±15%, 6.0W
Installation Category II

* For +24Vdc Power Supply use only devices meeting NEC Class II or UL recognized (UL 1950).

 Equipment protected throughout by double insulation.

Hazardous Location:



-LR 34186
Class I, Division 2,
Groups A, B, C, & D



POLLUTION DEGREE 4: Extended Environment
Outdoor use where conductive contamination such as rain, snow, or dust may be present. (Hazardous Location only)

Ordinary Location: (-68 only)



12RN

POLLUTION DEGREE 2: Normally only non-conductive pollution occurs. Occasionally, however, a temporary conductivity caused by condensation must be expected.

RFI/EMI: EN-61326

LVD: EN-61010-1



Input: Choice of single or dual sensor input with measurement choices of pH/ORP, conductivity/resistivity, toroidal conductivity, flow, chlorine, dissolved oxygen, and dissolved ozone. Field-commissioned units allow user to change measurements on either or both inputs. See combination guide for valid combinations. For contacting conductivity measurements, temperature element must be a Pt 1000 RTD. For other measurements, use either a Pt100 RTD, Pt1000 RTD, or 22k NTC (D.O. only).

Outputs: Two 4-20 mA or 0-20 mA isolated outputs. Continuously adjustable. Linear or logarithmic. Maximum load 500 ohms. Output dampening with time constant of 5 sec is user-selectable.

Alarms: Three alarm relays for process measurement(s) or temperature. Alarm 3 can be configured as a fault alarm, instead of a process alarm. Each relay can be configured independently. Alarm logic (high or low activation or USP*) and deadband are user-programmable. The USP* alarm can be programmed to activate when the conductivity is within a user-selectable percentage of the limit.



*conductivity/resistivity measurement only

Relays: Form C, single pole double throw, epoxy sealed



	Resistive	Inductive
28 Vdc	5.0 A	3.0 A
115 Vac	5.0 A	3.0 A
230 Vac	5.0 A	1.5 A

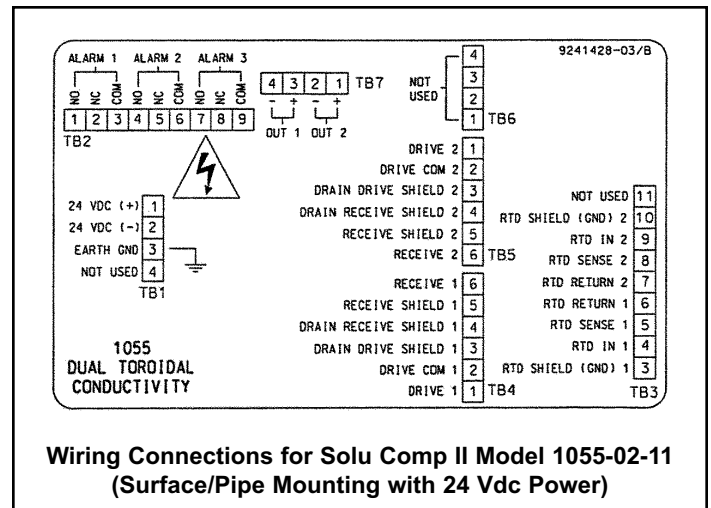
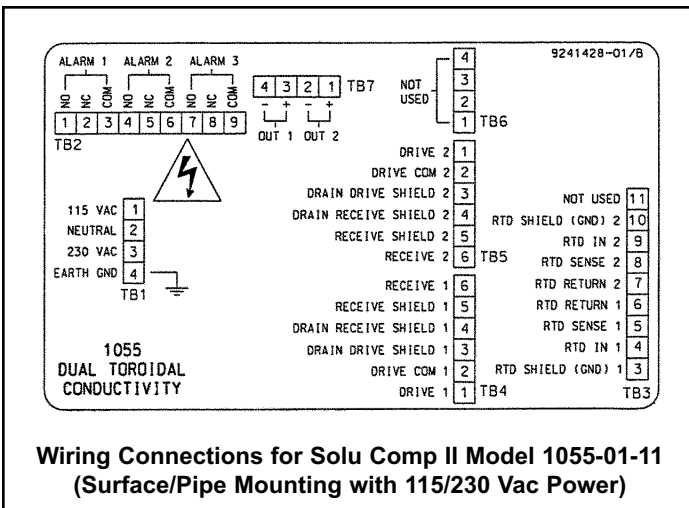
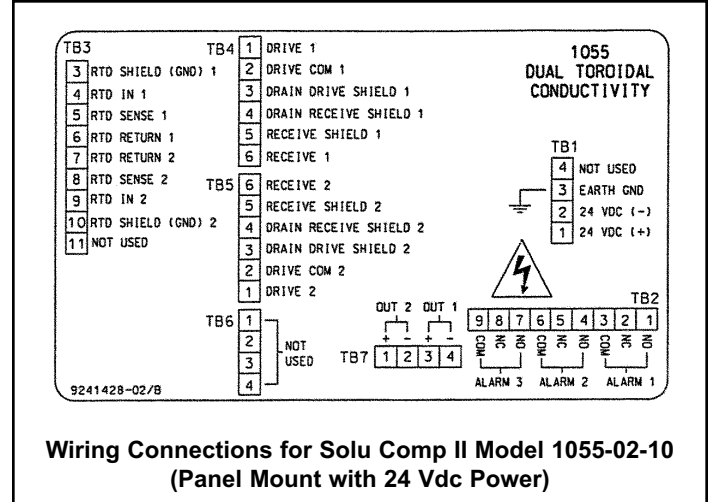
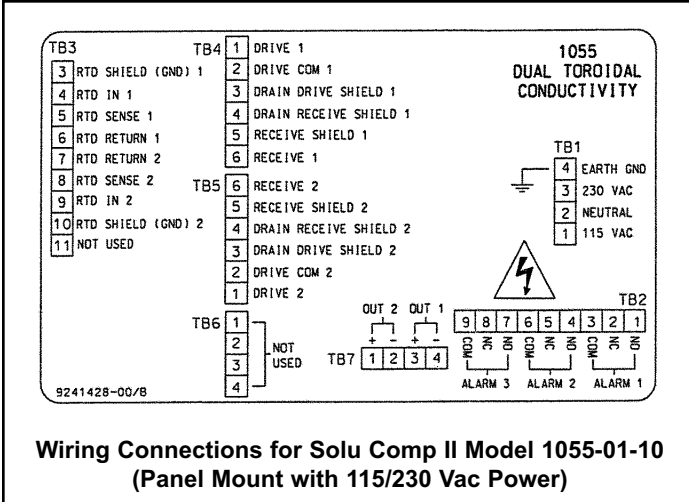
Terminal Connections Rating: 26-14 AWG wire size

Weight/Shipping weight (rounded up to nearest lb or nearest 0.5 kg): 3 lb (1.5 kg)/4 lb (2.0 kg)

QUICK START GUIDE

FOR MODEL SOLU COMP II TOROIDAL ANALYZER (Model Option 1055-21-31)

1. Wire sensor(s) to the analyzer. See the drawings below. Refer to the sensor instruction sheet for details. Make alarm, output, and power connections as shown below.



2. Once connections are secured and verified, apply power to the analyzer.

CONTINUED ON THE FOLLOWING PAGE

4. When the analyzer is powered up for the first time, **Quick Start** screens appear. Using **Quick Start** is easy.
 - a. A blinking field shows the position of the cursor.
 - b. Use the ◀ or ▶ key to move the cursor left or right. Use the ▲ or ▼ key to move the cursor up or down or to increase or decrease the value of a digit. Use the ▲ or ▼ key to move the decimal point.
 - c. Press ENTER to store a setting. Press EXIT to leave without storing changes. Pressing EXIT also returns the display to the previous screen.

English	Fran aís
Espa ol	>>

5. Choose the desired language. Select >> to show more choices.

# of sensors?	
One	Two

6. Choose the number of sensors wired to the analyzer.

NOTE

If **One** sensor is selected, only S1 will be available. **S2** cannot be disabled.

S1Measure?	Cond
TDS	Custom %Conc

7. Select the measurement for sensor 1 (toroidal conductivity). **Cond** is conductivity; **TDS** is total dissolved solids; **Custom** is a user-entered concentration curve; and **%Conc** permits the user to select one of four built-in concentration curves — 0-12% NaOH, 0-15% H₂SO₄, 96-99.7% H₂SO₄, and 0-15%HCl.

Cell Constant?	
S1:	3.000/cm

8. Enter the cell constant for Sensor 1 (toroidal conductivity). Refer to the label on the sensor.

S1 %Conc?		
NaOH	H2SO4	HCl

9. This screen appears only if you selected **%Conc** in step 7. Choose **NaOH**, **H2SO4**, or **HCl**. If you chose **H2SO4**, select **0-25%** or **96-99.7%**.

S2Measure?	Cond
TDS	Custom %Conc

10. Select the measurement for sensor 2. **Cond** is conductivity; **TDS** is total dissolved solids; **Custom** is a user-entered concentration curve; and **%Conc** permits the user to select one of four built-in concentration curves — 0-12% NaOH, 0-15% H₂SO₄, 96-99.7% H₂SO₄, and 0-15%HCl. Complete step 8 and 9 for sensor 2. This screen does not appear if the analyzer is configured for a single sensor (toroidal conductivity).

Temperature in?	
C	F

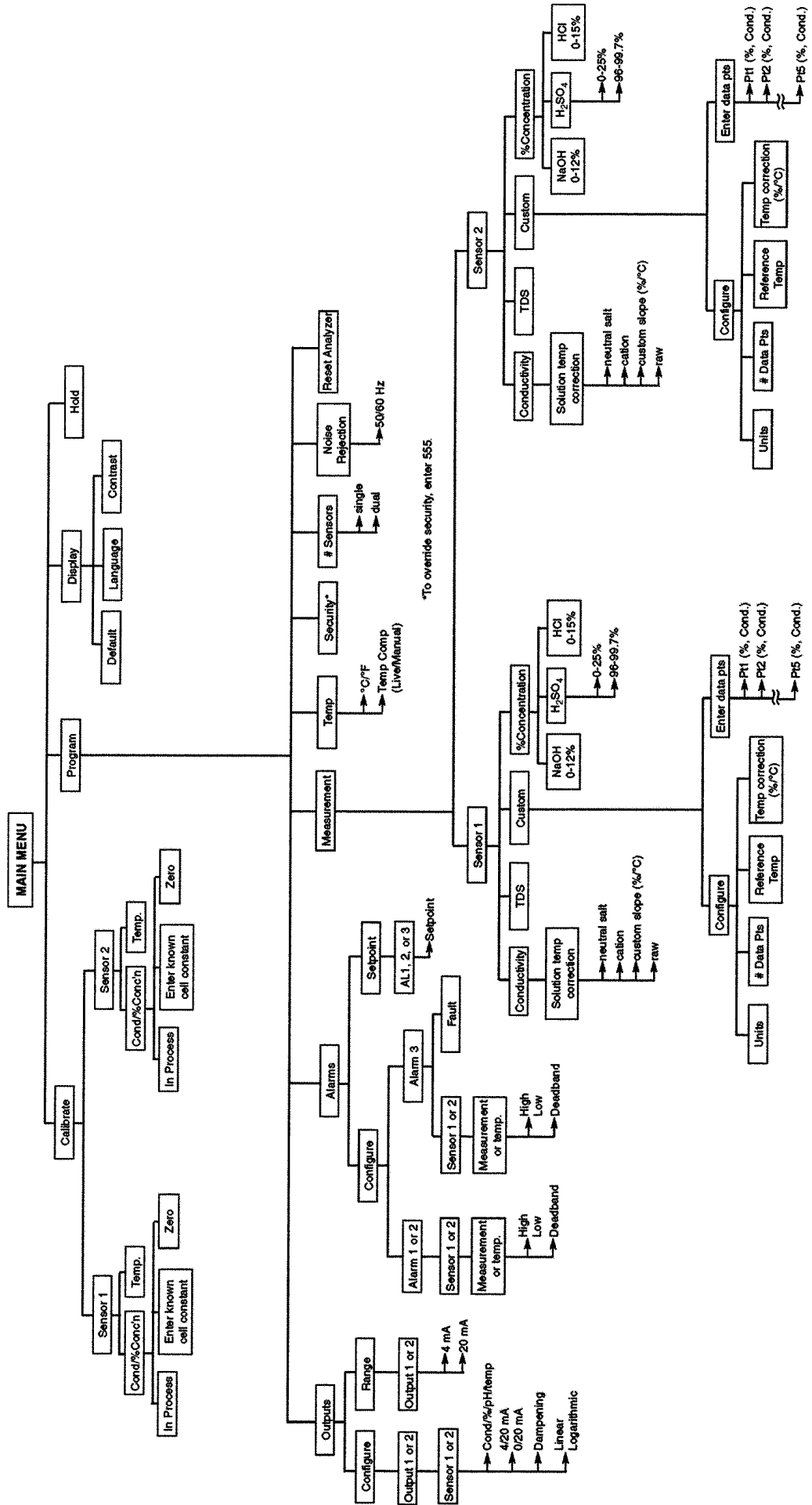
11. Choose temperature units.
12. The main display appears. The outputs and alarms are assigned to default values.
13. To change outputs, alarms, and temperature-related settings, go to the main menu and choose **Program**. Follow the prompts. For a guide to the Program menu, see the menu tree on the following page.

S1	Custom Config
	Enter Data Pts

14. If you selected **Custom**, you must enter the appropriate conductivity and concentration data points. From the main display, press MENU. Choose **Program** followed by **Measurement**, **Sensor 1/Sensor 2**, and **Custom**. The screen shown at left appears. Choose **Custom Config**. Follow the prompts and enter the display units, the number of data points, the reference temperature, and the temperature coefficient (slope). Once the analyzer has been configured, press EXIT to return to the screen at the left. Select **Enter Data Pts** and enter the concentration and conductivity data points. For a guide to the program menu, see the menu tree on the following page.
15. To return the analyzer to the default settings, choose **Reset Analyzer** in the Program menu.

QUICK REFERENCE GUIDE

MENU TREE FOR TOROIDAL MEASUREMENTS



INSTALLATION

UNPACKING AND INSPECTION.

Inspect the shipping container. If it is damaged, contact the shipper immediately for instructions. Save the box. If there is no apparent damage, unpack the container. Be sure all items shown on the packing list are present. If items are missing, notify Rosemount Analytical immediately.

INSTALLATION

1. Although the analyzer is suitable for outdoor use, do not install it in direct sunlight or in areas of extreme temperatures.
2. Install the analyzer in an area where vibrations and electromagnetic and radio frequency interference are minimized or absent.

3. Keep the analyzer and sensor wiring at least one foot from high voltage conductors. Be sure there is easy access to the analyzer.
4. **AC power and relay wiring should not enter via top conduit openings and should be kept separated from other wiring in the analyzer after installation.**
5. To reduce the likelihood of stress on wiring connections, the hinged front panel (-11 models) shall not be removed from the base during wiring installation, and there shall be sufficient wire leads to avoid stress on conductors.
6. For UL-approved models (-68), the clear wiring shield must be installed prior to operation.

PANEL MOUNTING

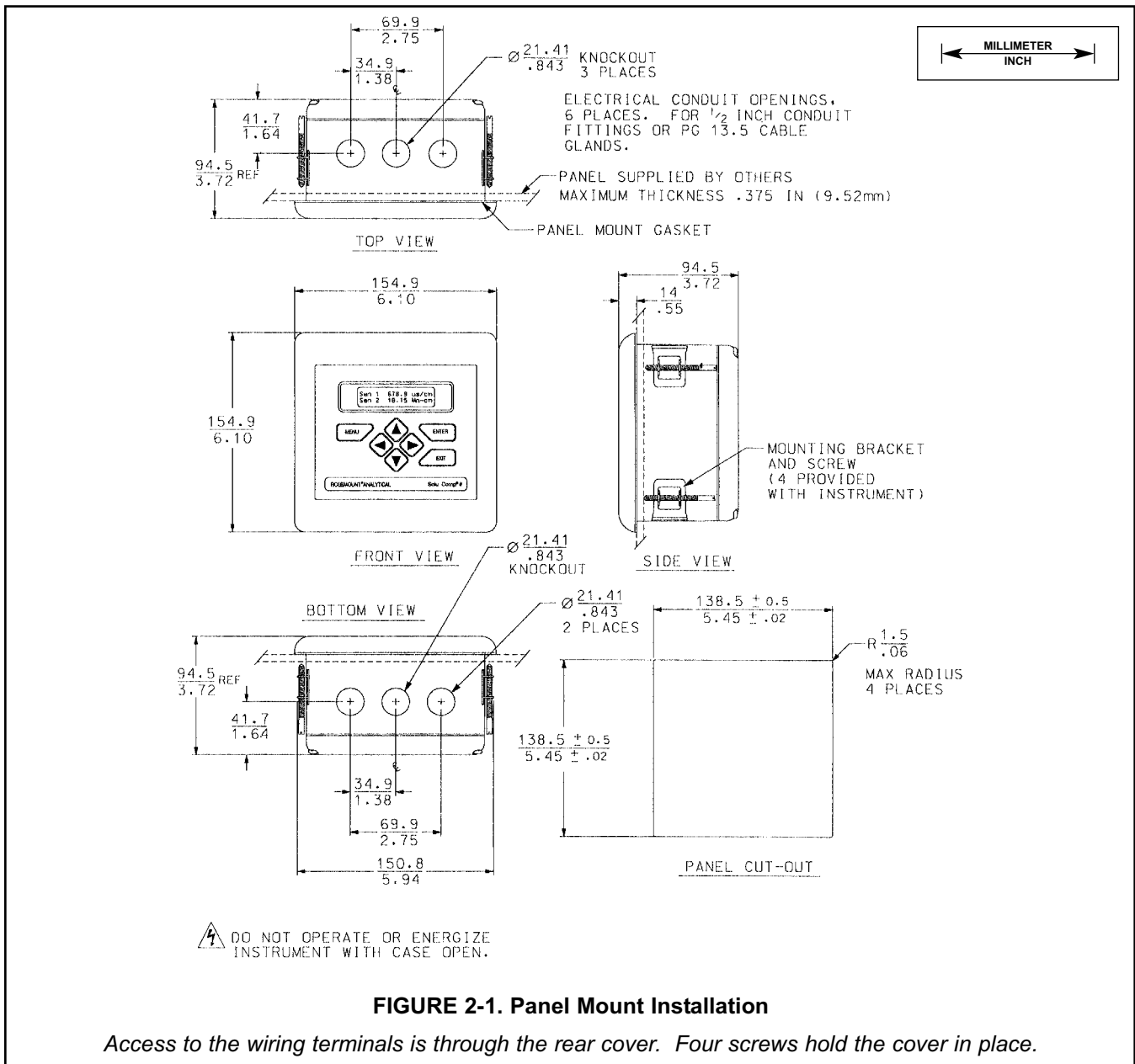
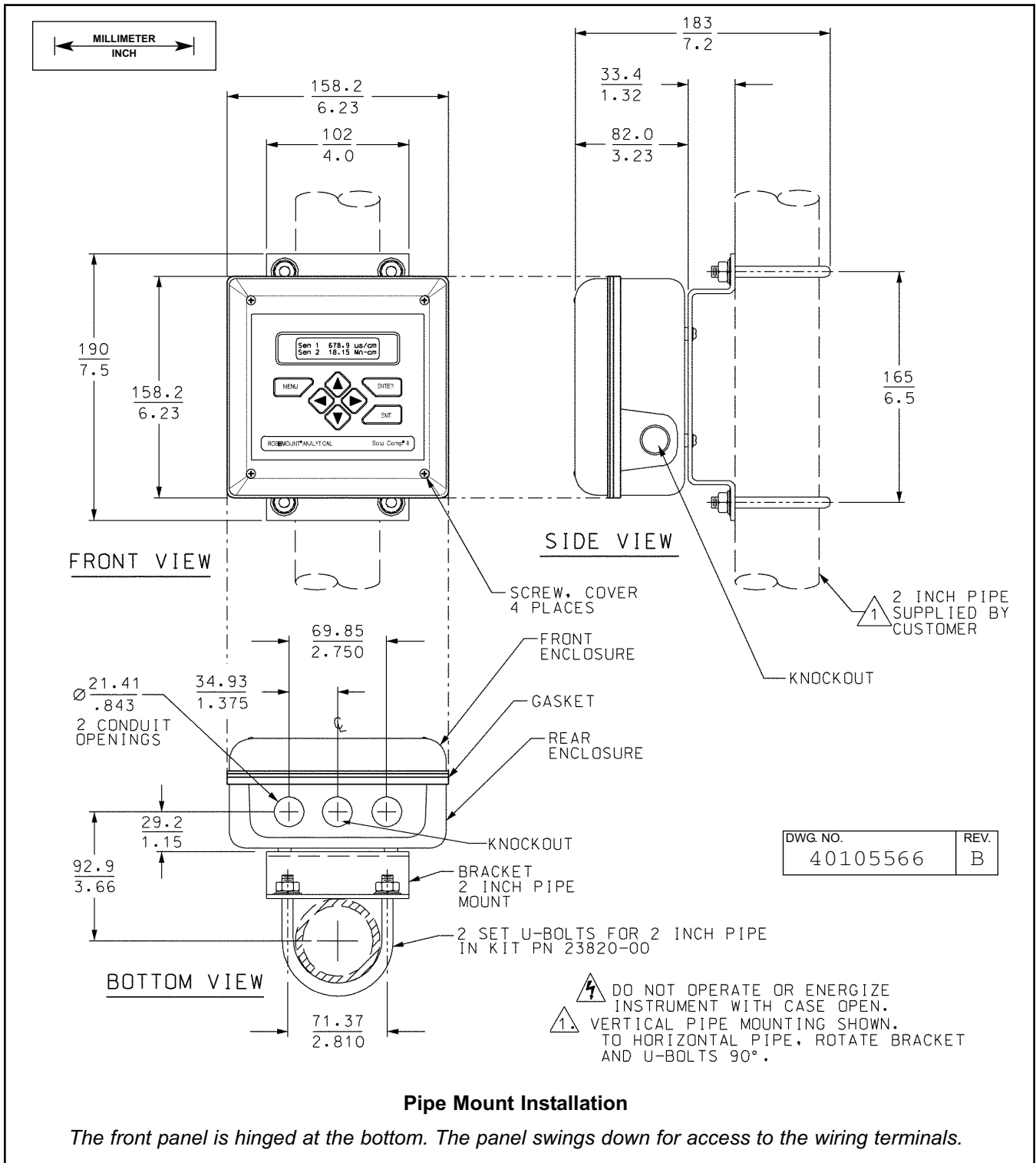


FIGURE 2-1. Panel Mount Installation

Access to the wiring terminals is through the rear cover. Four screws hold the cover in place.

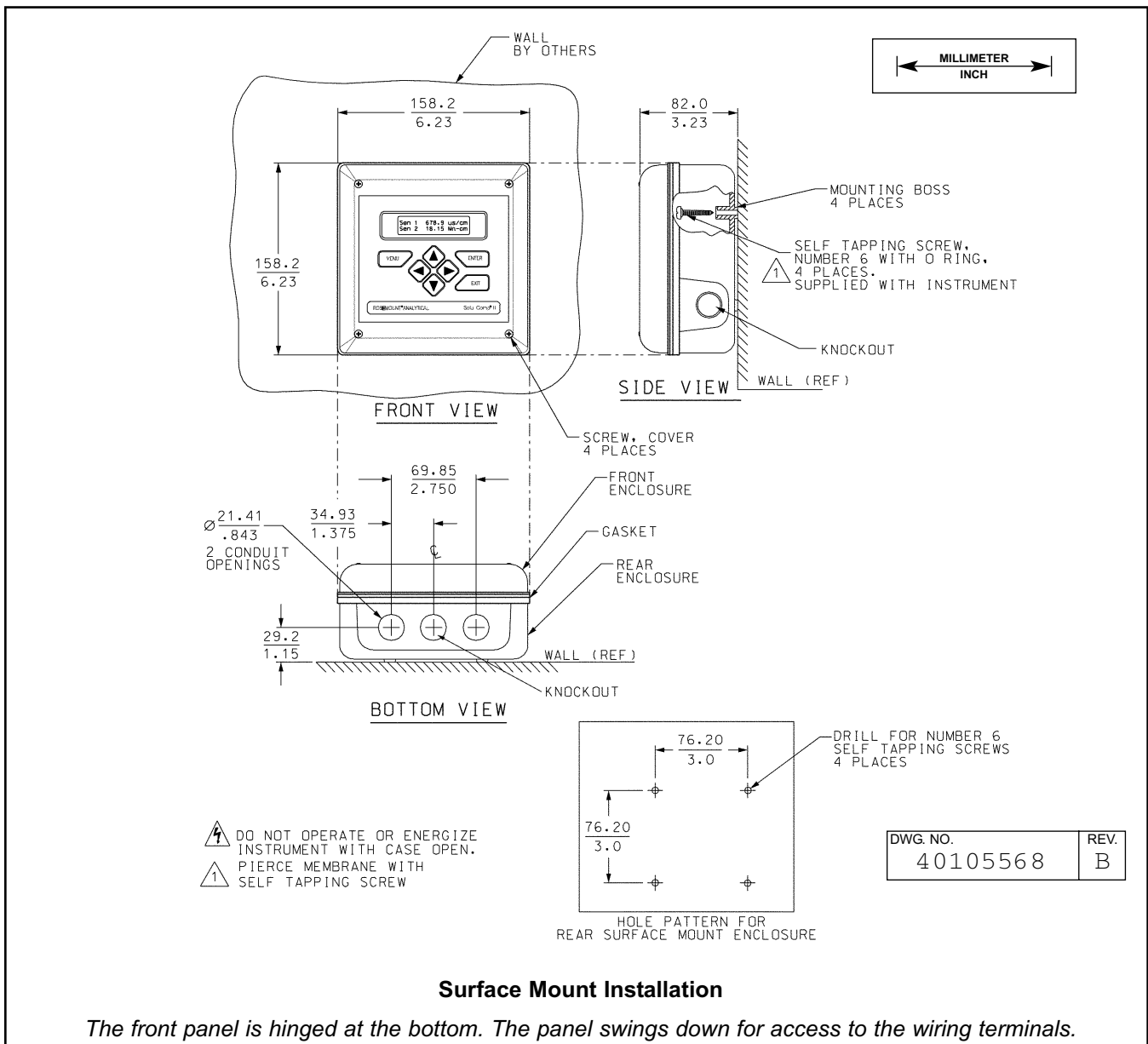
PIPE MOUNTING



Pipe Mount Installation

The front panel is hinged at the bottom. The panel swings down for access to the wiring terminals.

SURFACE MOUNTING



*The right people,
the right answers,
right now.*

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Emerson Process Management

Liquid Division
2400 Barranca Parkway
Irvine, CA 92606 USA
Tel: (949) 757-8500
Fax: (949) 474-7250
<http://www.raihome.com>

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