AMETEK®
DREXELBROOK

A Leader in
Level Measurement

For Assistance Call 1-800-527-6297
Outside North America 1-215-674-1234

Installation and Operating Instructions

Series 504-1000
Ultrasonic VeriGAP™ Switch
using 404-1000 and 404-1060 Electronics

(215) 674-1234 Outside North America
1-800-527-6297 US and Canada
http://www.drexelbrook.com
e-mail:drexelbrook.service@ametek.com

EDO # 2-06-244
504-1000-LM
Issue # 5

Series 504-1000 Ultrasonic VeriGAP™ Switch using 404-1000 and 404-1060 Electronics

AMETEK®
DREXELBROOK
205 Keith Valley Road Horsham, PA 19044
An ISO 9001 Certified Company

US Sales	800-553-9092
24 Hour Service	800-527-6297
International	215-674-1234
Fax	215-674-2731
E-mail	drexelbrook.info@ametek.com
Web	www.drexelbrook.com

Table of Contents

SECTION 1 INTRODUCTION

The instructions in this manual are for the Drexelbrook point level ultrasonic VeriGAP™ switch, 504-1000 Series.

1.1 General Description

The 504-1000 Series ultrasonic VeriGAP™ switch is an integral assembly which senses liquid presence by ultrasonic techniques and energizes a relay which can be utilized to indicate and/or control the liquid at a predetermined level.

A high frequency acoustic signal is transmitted through the sensor gap when liquid is present. When liquid is not present, no signal transmission occurs. See Figure 1-1. When a signal is received, an electronic circuit produces a relay output. The ultrasonic sensor does not contain moving components. It is not affected by electrical or physical parameters of the process material and will operate over a wide temperature range. These characteristics make the 504-1000 a very reliable and economical solution to industrial liquid level control operations.

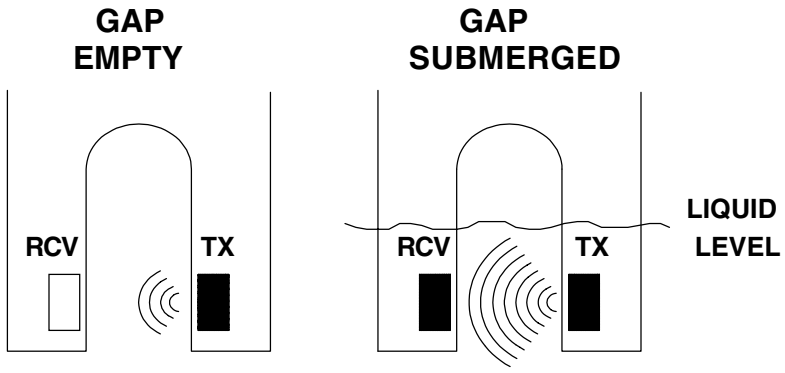


Figure 1-1
VeriGAP™ Switch Operation

1.1.1 Verify™ Circuit

As an option, the ultrasonic Verify™ circuit is used in conjunction with the VeriGAP for pushbutton verification that the entire control system is functioning properly. This option is used with high level fail-safe devices only. It simulates a high level at the sensing element to meet spill prevention regulations and recommended practices. **This test may also be used for ISO 9000 validation of your high level alarms and spill prevention systems.**

1.3 Model Numbering

5 0 4 - 1 X 0 0 - X X X VeriGAP™ Switch

Sensing Element
01 - 316 SS
03 - Alloy 20
05 - Hastelloy "C"
06 - Teflon
07 - Seal Tyte™
08 - 3A Approved Sanitary 316 SS

Configuration
0 - Integral Electronics
7 - Remote Electronics

Power / Output
0 - 120 Vac, DPDT Relay
1 - 24 Vdc, DPDT Relay
2 - 24 Vdc Loop Powered (Separate Instruction Manual)
3 - 240 Vac, DPDT Relay
6 - Dual Gap, 2 DPDT Relays

4 0 4 - 1 X X 0 - 0 X X

Power / Output
0 - 120 Vac, DPDT Relay
1 - 24 Vdc, DPDT Relay
2 - 24 Vdc, two-wire (Separate Instruction Manual)
3 - 240 Vdc, DPDT Relay

Number of Points
0 - Single Point
6 - Dual Point

Test Circuit
0 - No Testing
V - Manual Verify
A - AutoVerify

Housing Option
1 - Chassis Only
2 - Five inch, Y-hub Remote, Explosionproof
3 - Five inch, Y-hub Remote Explosionproof with Drexelcote™
4 - Remote Nema 4 X Explosionproof
6 - Remote Nema 4X Explosionproof with Drexelcote™
8 - Integral Nema 4X Explosionproof with Drexelcote™
9 - Integral Nema 4X Explosionproof
C - Five inch, Y-hub Integral Explosionproof
F - Five inch, Y-hub Integral Explosionproof with Drexelcote™

SECTION 2
INSTALLATION

2.1 Unpacking

Carefully remove the contents of the shipping carton and check each item against the packing list before destroying any packing material. If there is any shortage or damage, report it immediately to the factory (1-800-527-6297).

2.2 Mounting the Instrument

The 504-1000 electronic unit was designed for field mounting, but it should be mounted in a location as free as possible from vibration, corrosive atmospheres, and any possibility of mechanical damage. For convenience at start-up, place the instrument in a reasonably accessible location. Ambient temperatures should be between -40°F and 160°F (-40°C to 70°C).

The 504-1000 VeriGAP™ switches can be mounted in any orientation vertically.

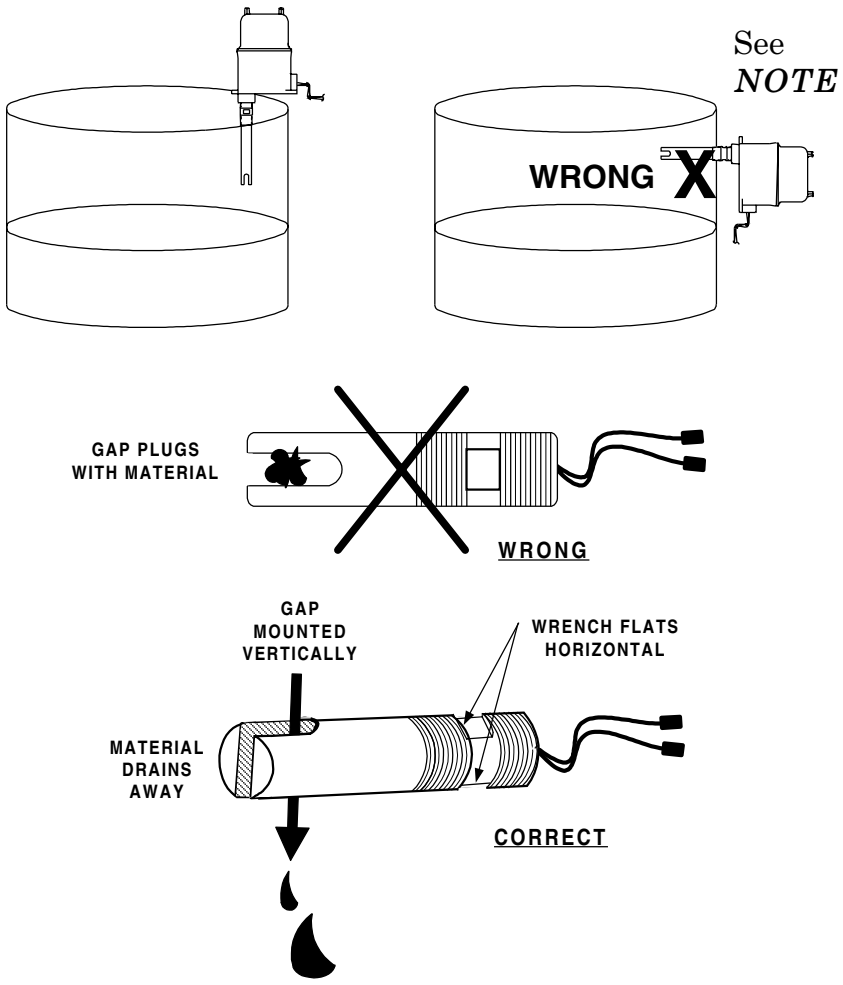


Figure 2-1
Mounting Orientation

NOTE

If the unit is mounted horizontally, rotate the sensor so that the electrical hub is down and the sensor slot is vertical. This allows any product buildup on the sensor to fall free. Note orientation of wrench flats relative to the gap.

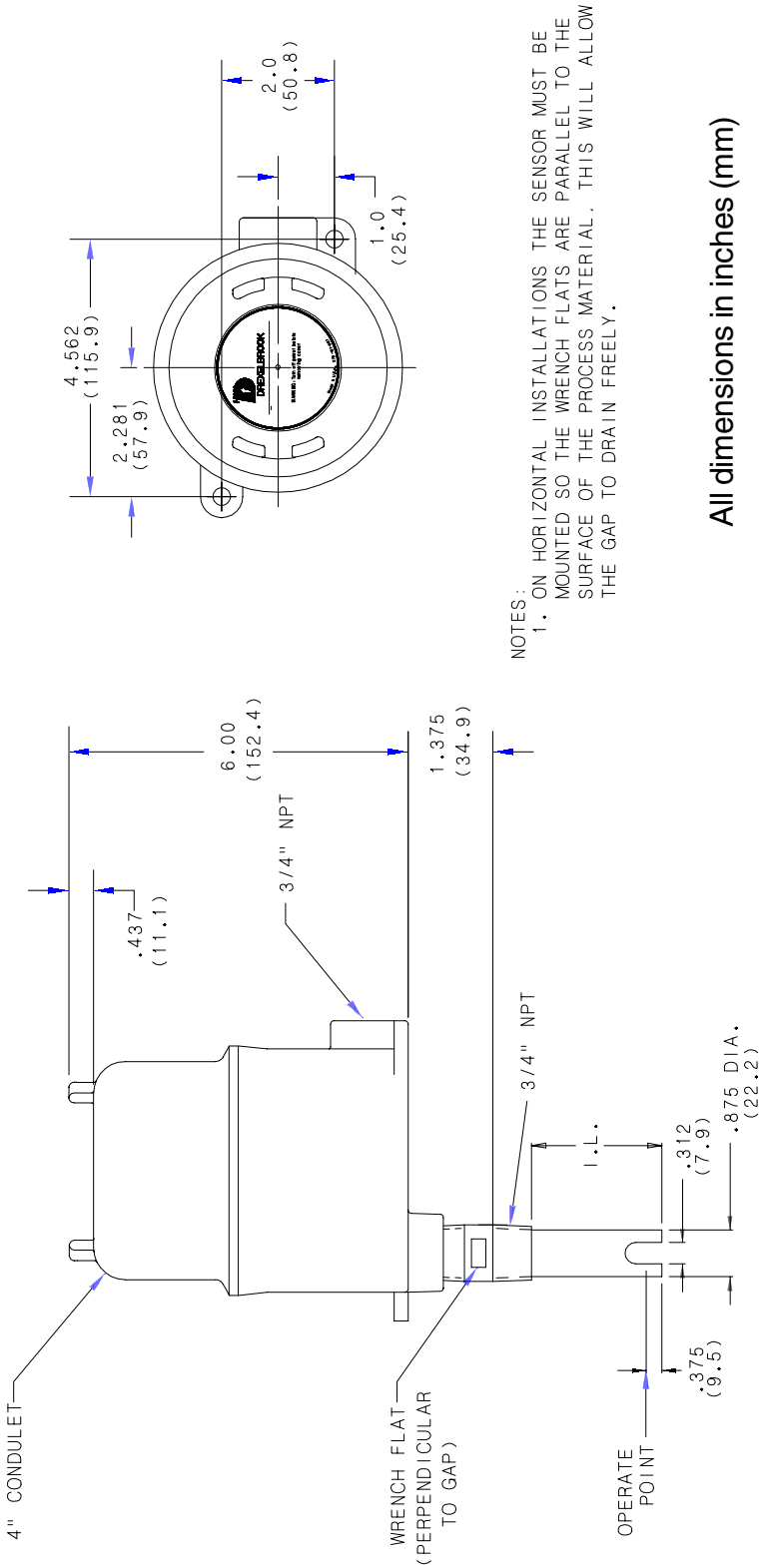
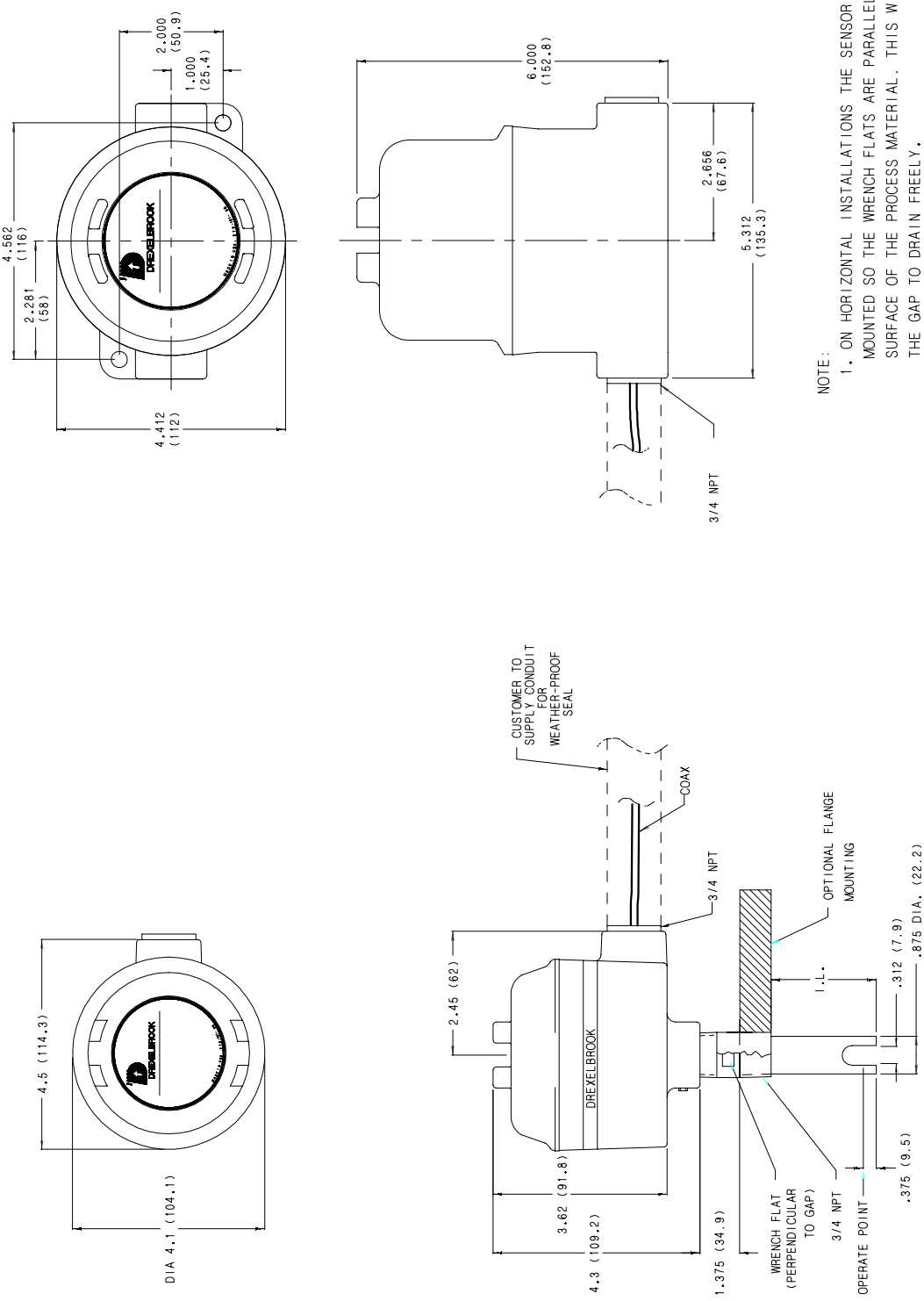


Figure 2-2
Mounting Dimensions
Single Gap, Integral Unit



All dimensions in inches (mm)

Figure 2-3
Mounting Dimensions
Single Gap, Remote Unit

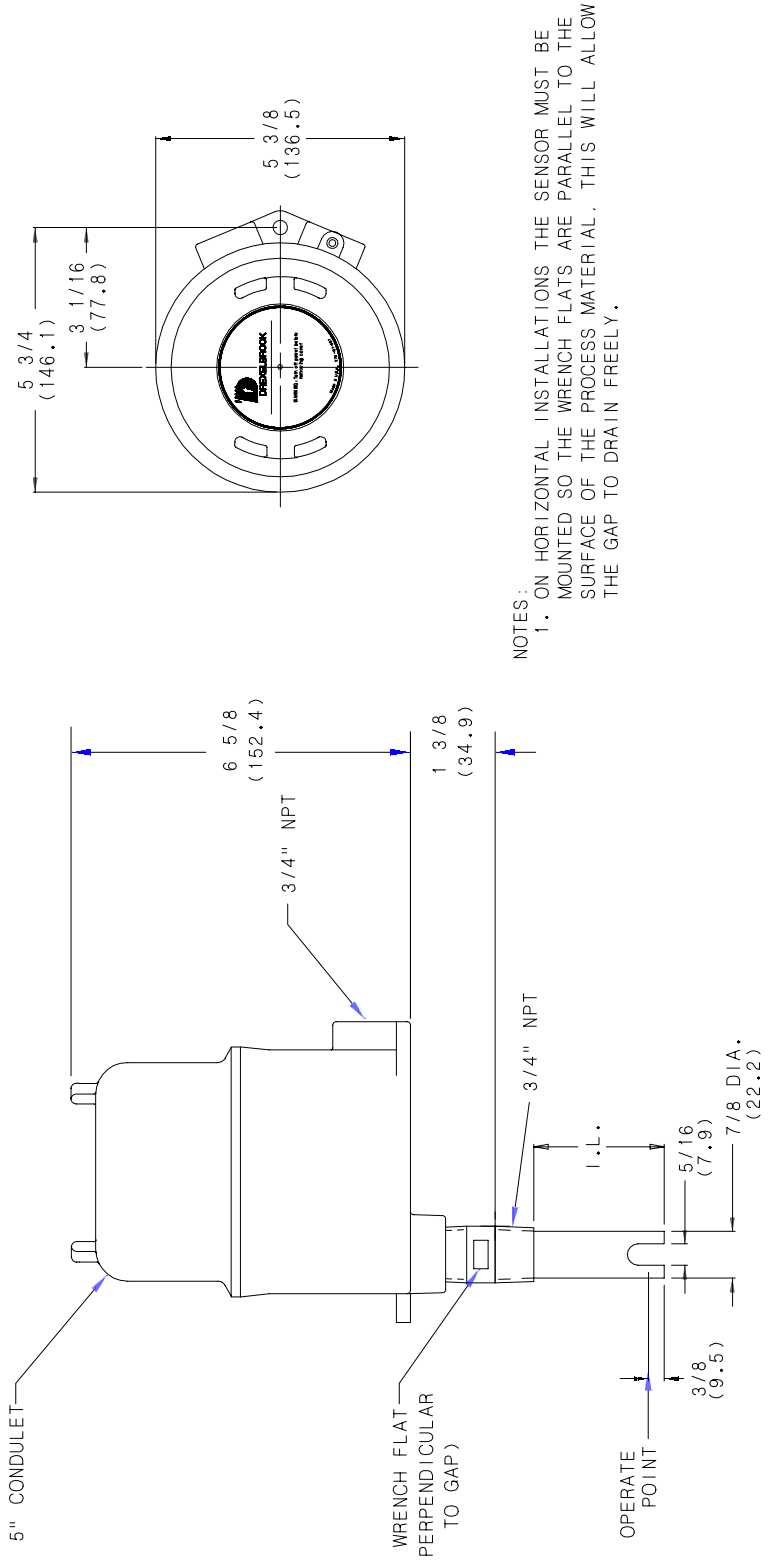


Figure 2-4
Mounting Dimensions
Single Gap with Verify Housing

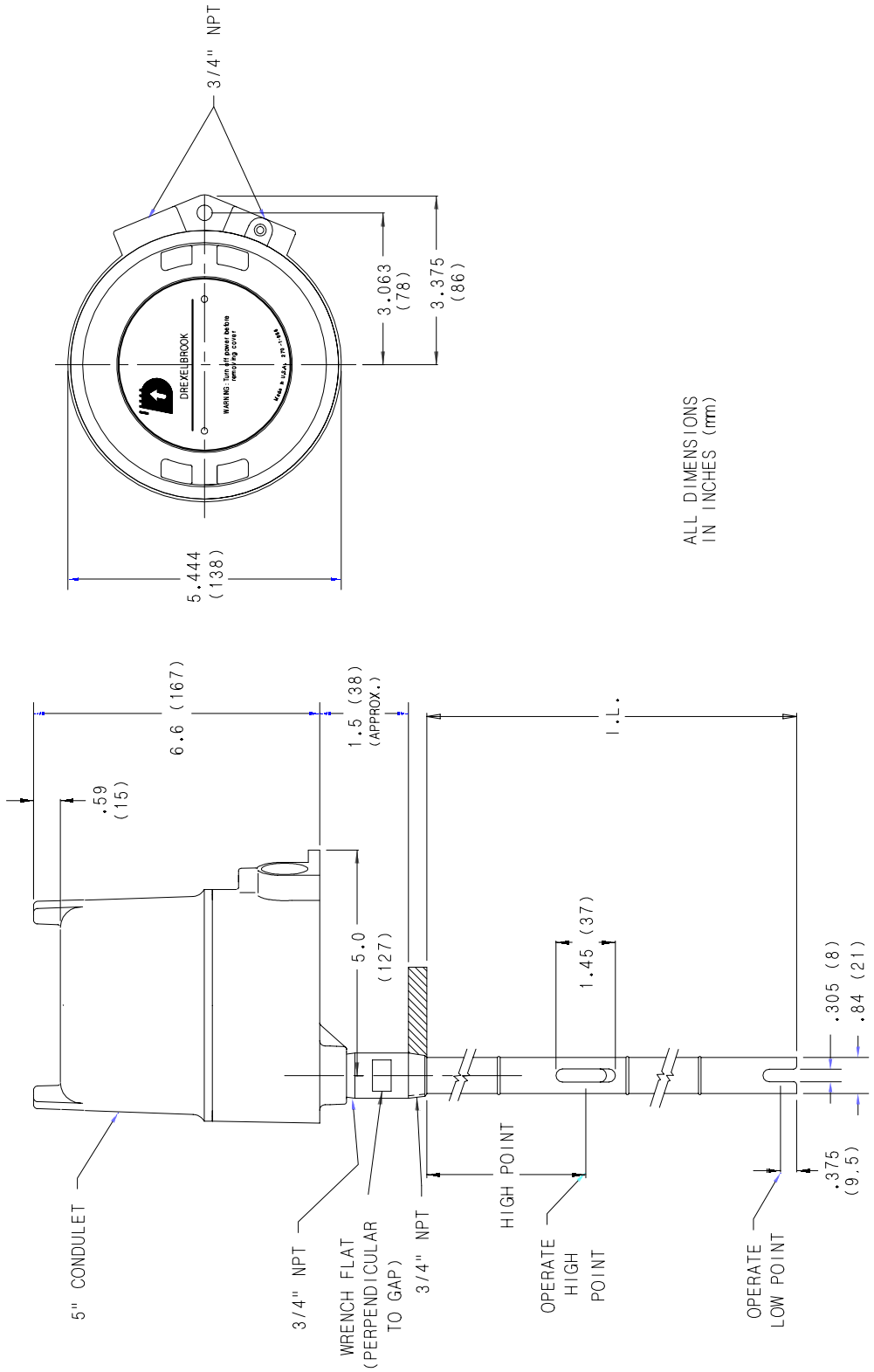


Figure 2-5
Mounting Dimensions
Dual Gap

2.3 Wiring the Instrument

CAUTION

Ensure that all wiring, electrical fittings and conduit connections conform to your local electrical codes for the location and environment of use. If the 504-1000 Gap Switch is located in a hazardous environment, do not open the enclosure cover or make/break any electrical connections without first disconnecting electrical power at the source.

Use the following procedure to wire the 504-1000 VeriGAP™ Switch

1. Ensure that the power is off.

2. Remove the cover.

3. Make all electrical connections to the switch per the wiring diagram shown in Figures 2-7 through 2-9, using 14-gauge or smaller wiring. All connections are made on the terminal strips.

4. The PC board mounting screws can be removed to allow movement of the PC board during wiring.

5. After connections are secured and dressed, re-insert the PC board and close the enclosure cover.

6. Review Checklist:
   - ☐ Wiring correct?
   - ☐ Proper input voltage used?
   - ☐ Proper relay state (relays will be in the alarm condition)?

7. Turn power on.

NOTES

• Make sure that the 115 Vac supply is clean and free of noise.

• Do not supply power to the VeriGAP that originates at a variable frequency drive motor supply.

• Do not run relay wires or supply wires in same conduit as variable frequency drive wiring.

2.3.1 Relay Wiring

Figure 2-6 shows the relay wiring for the 504-1000.

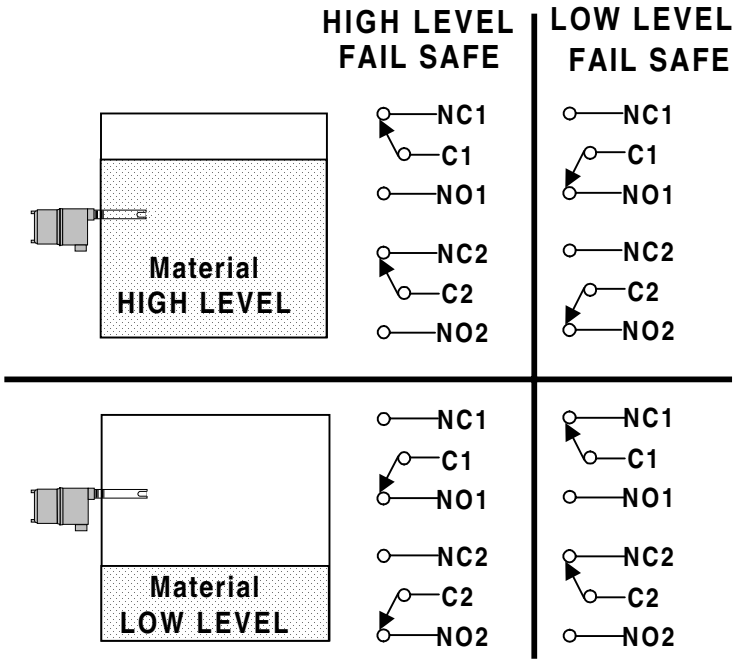


Figure 2-6
Relay Wiring

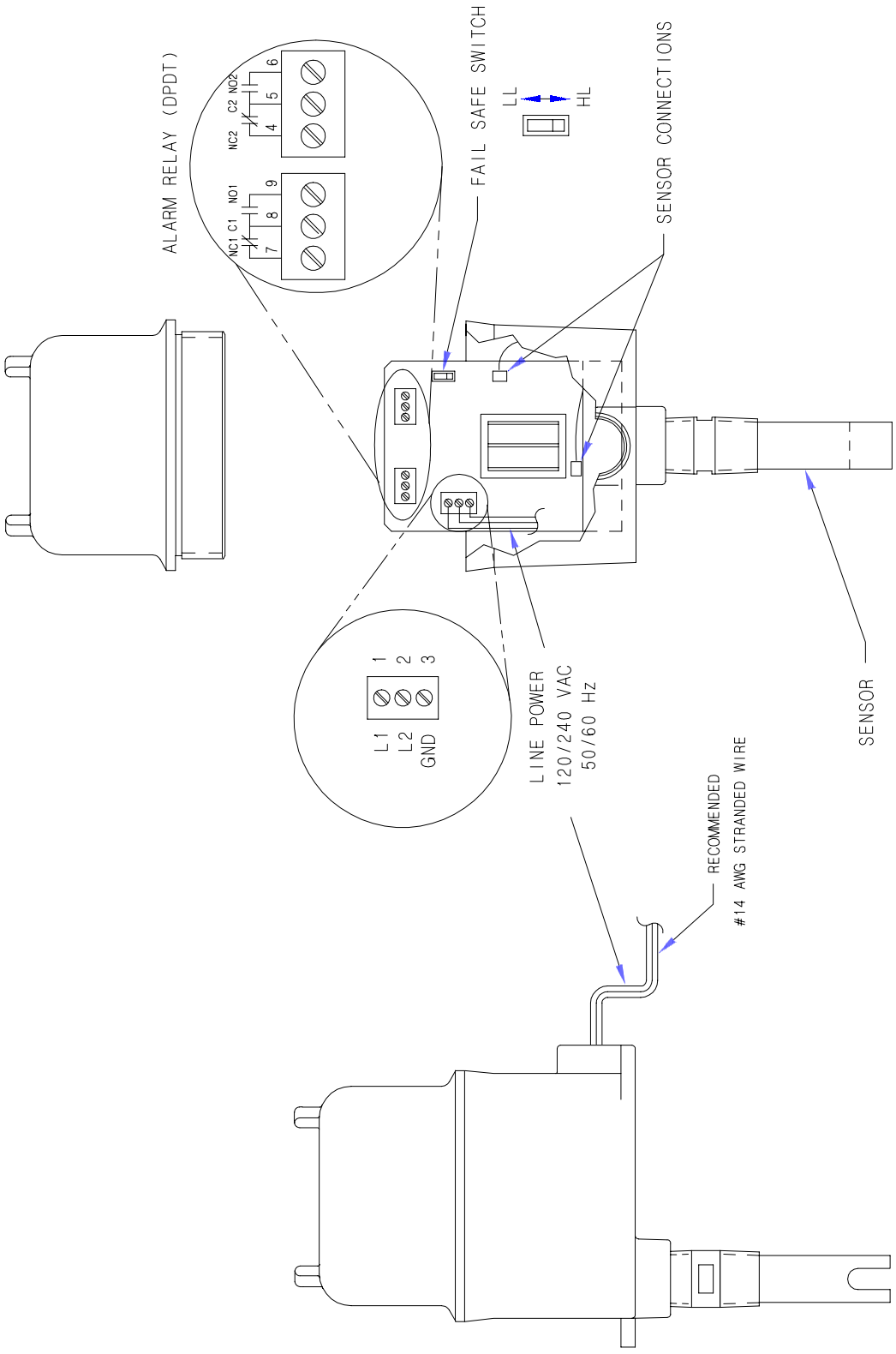


Figure 2-7
Wiring the 120/240 Vac
Integral VeriGAP Switch

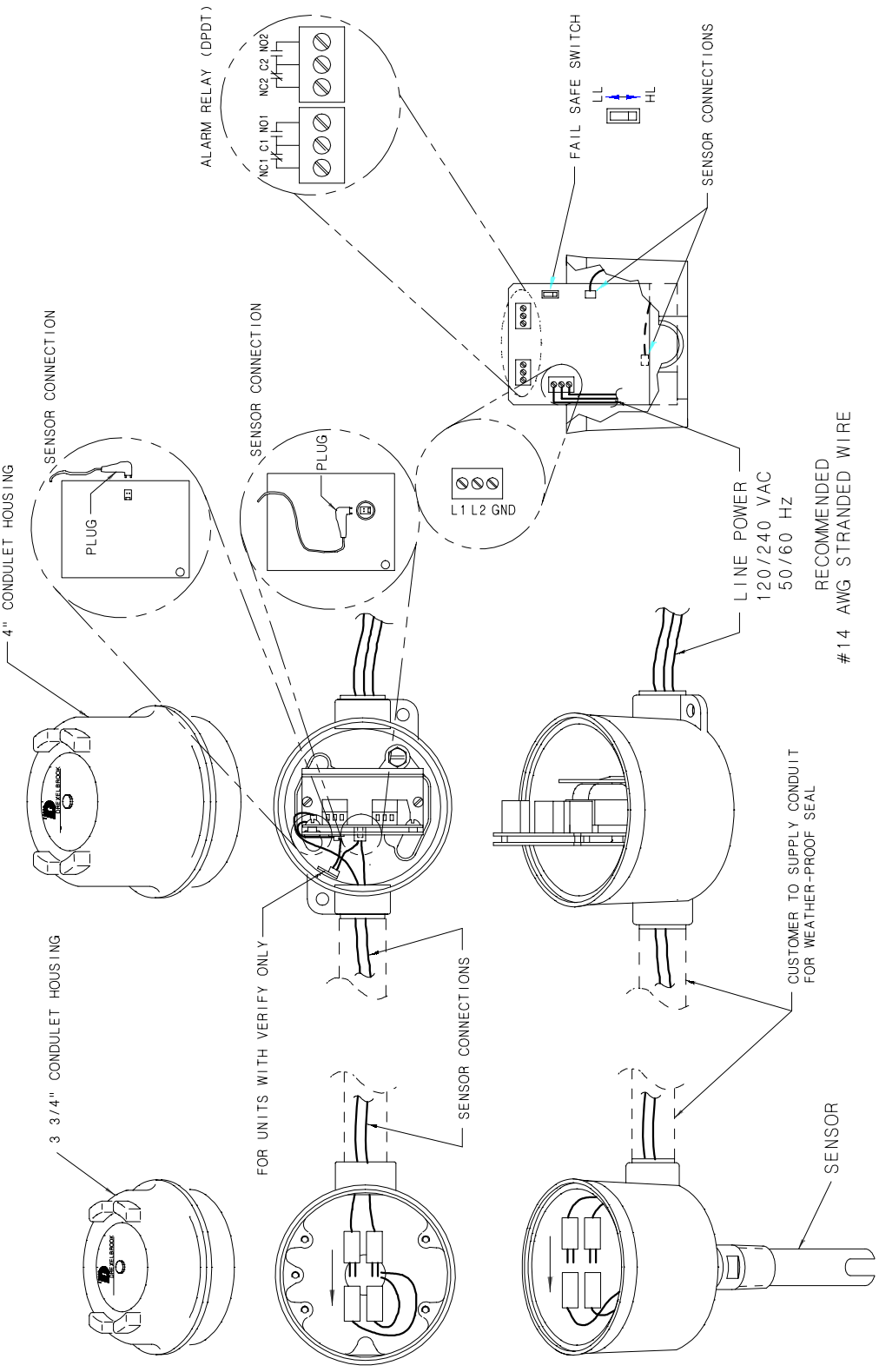


Figure 2-8
Wiring the 120/240 Vac
Remote VeriGAP Switch

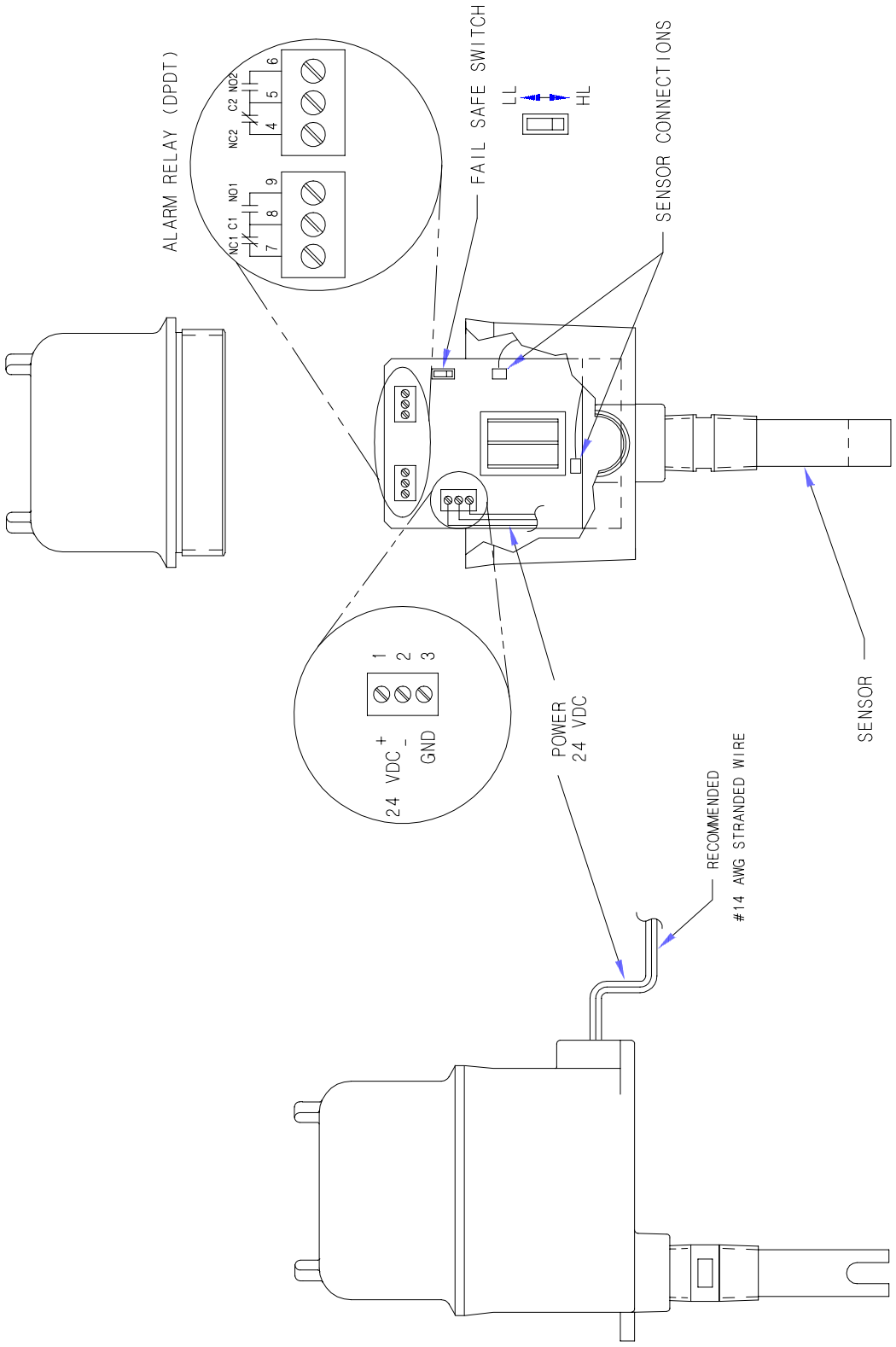


Figure 2-9
Wiring the 24 Vdc
Integral VeriGAP Switch

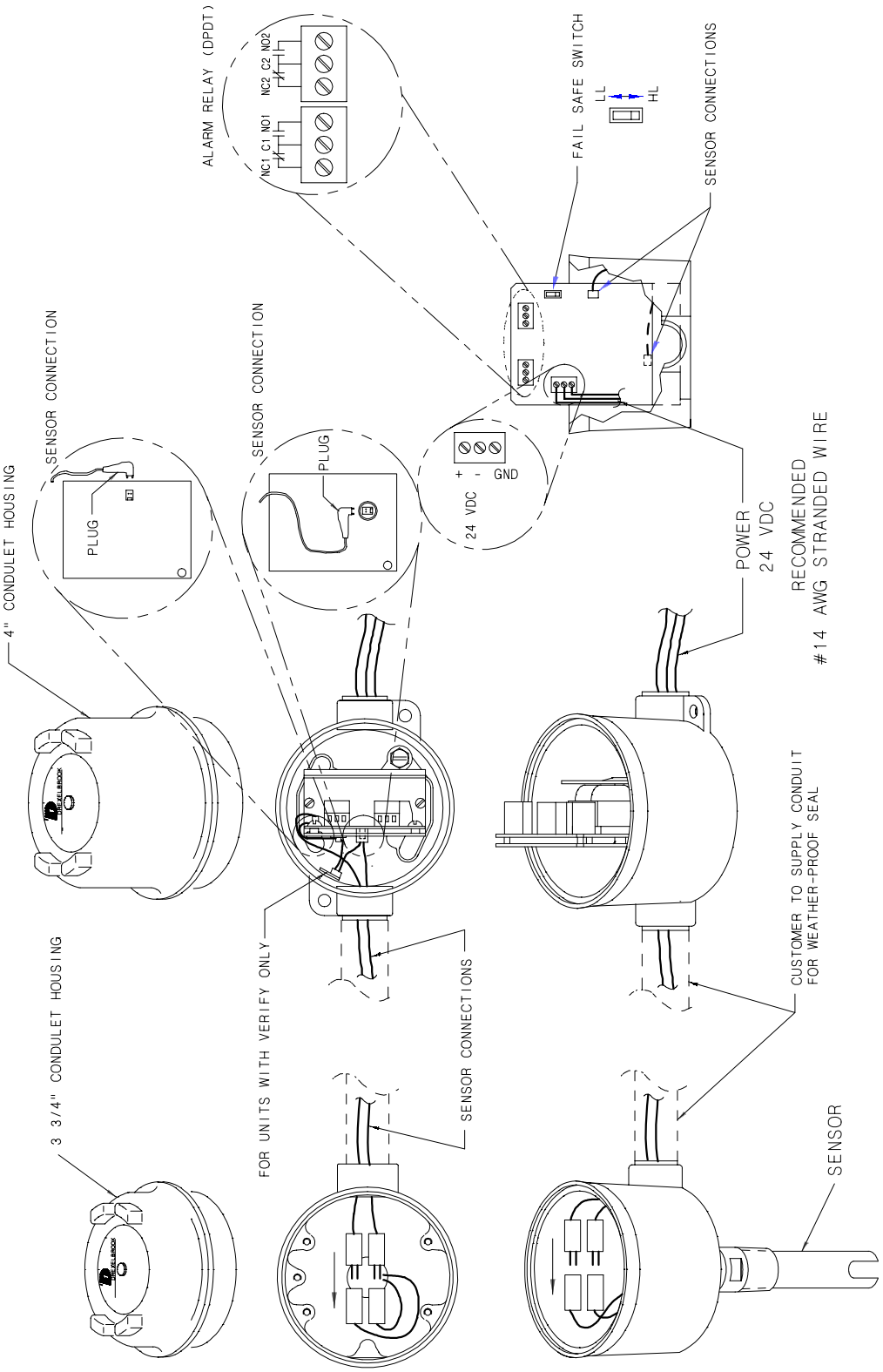


Figure 2-10
Wiring the 24 Vdc
Remote VeriGAP Switch

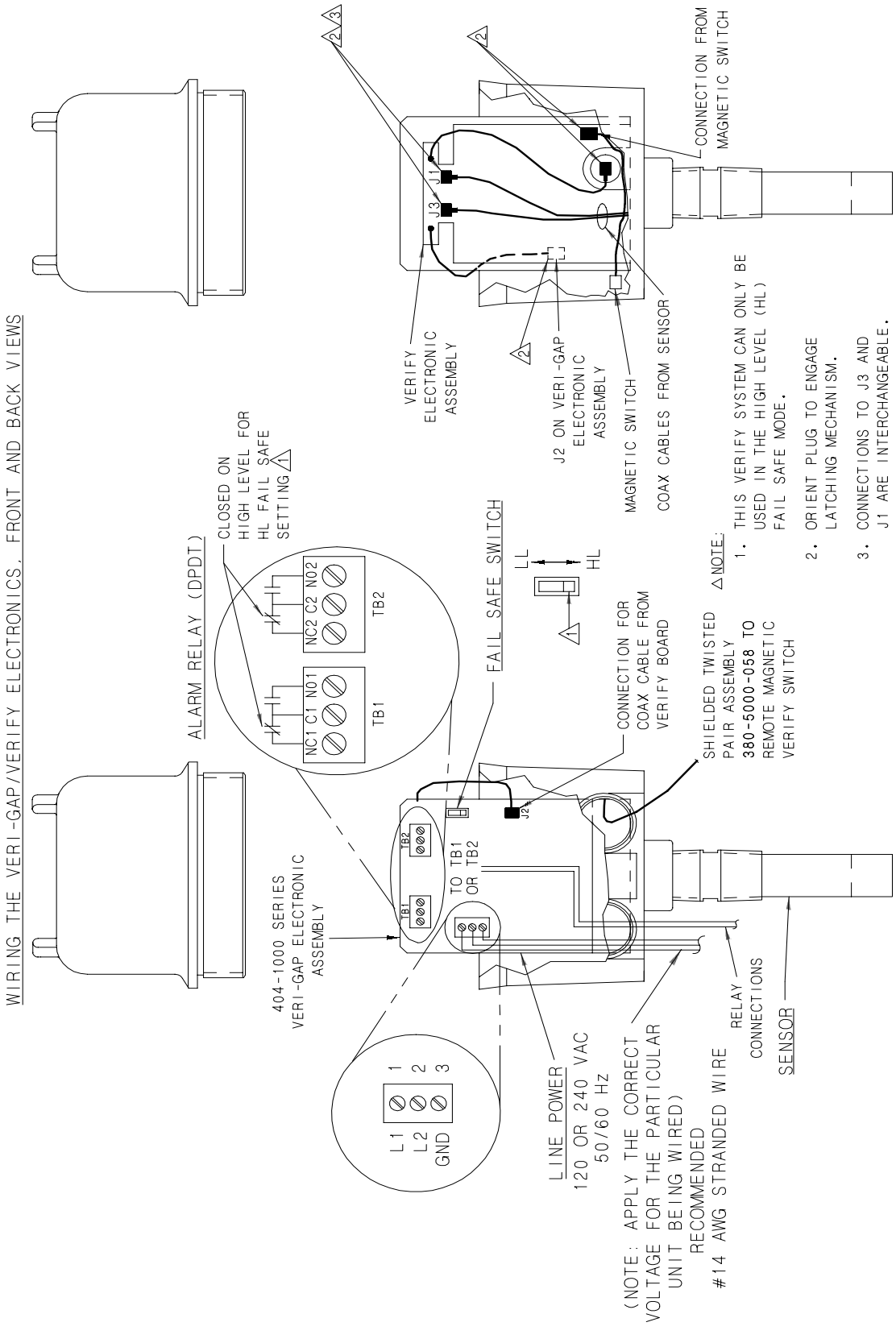


Figure 2-11 (View 1)
Wiring the 120/240 Vac
VeriGAP Switch with Verify

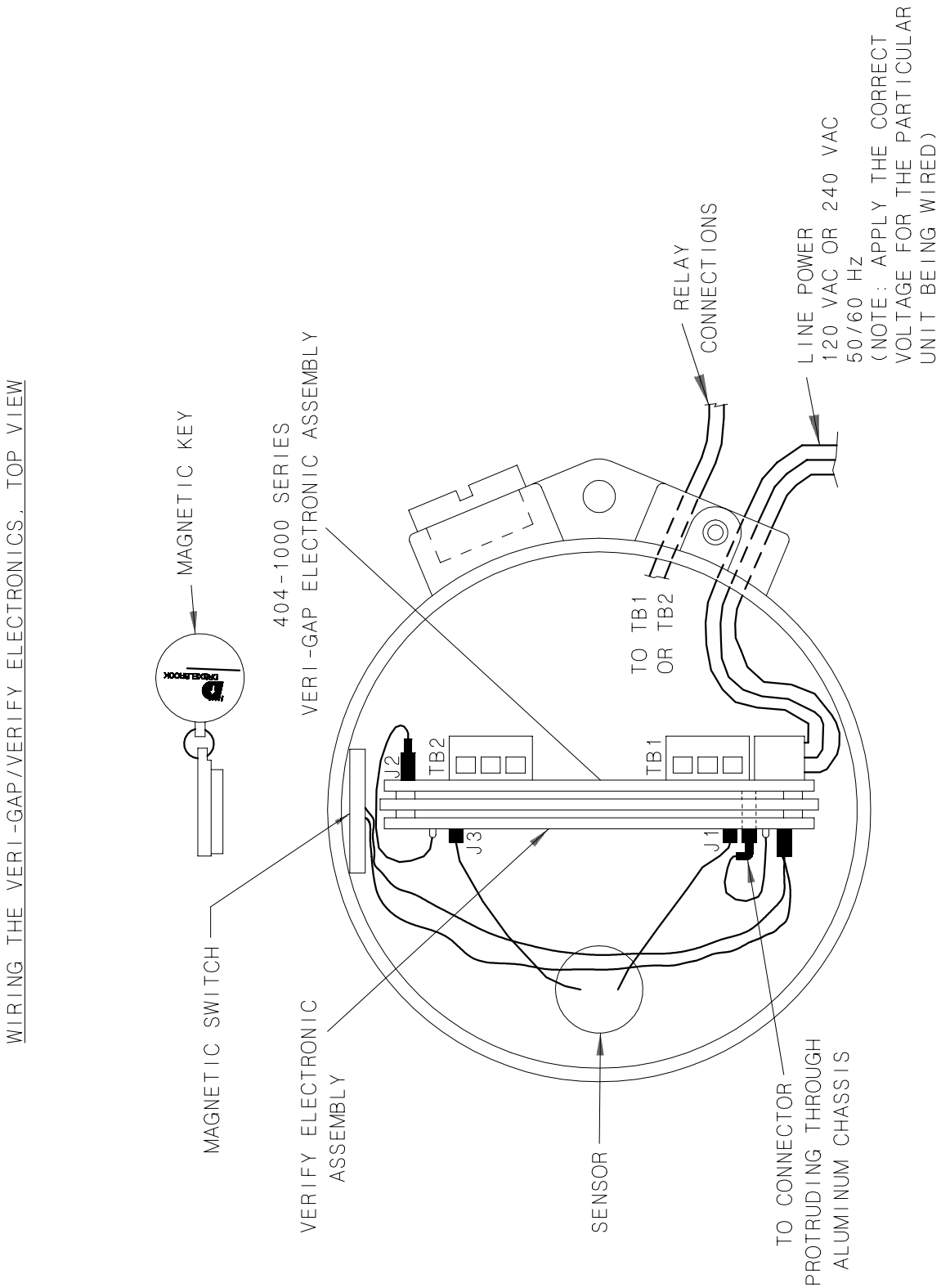


Figure 2-11(View 2)
Wiring the 120/240 Vac
VeriGAP Switch with Verify

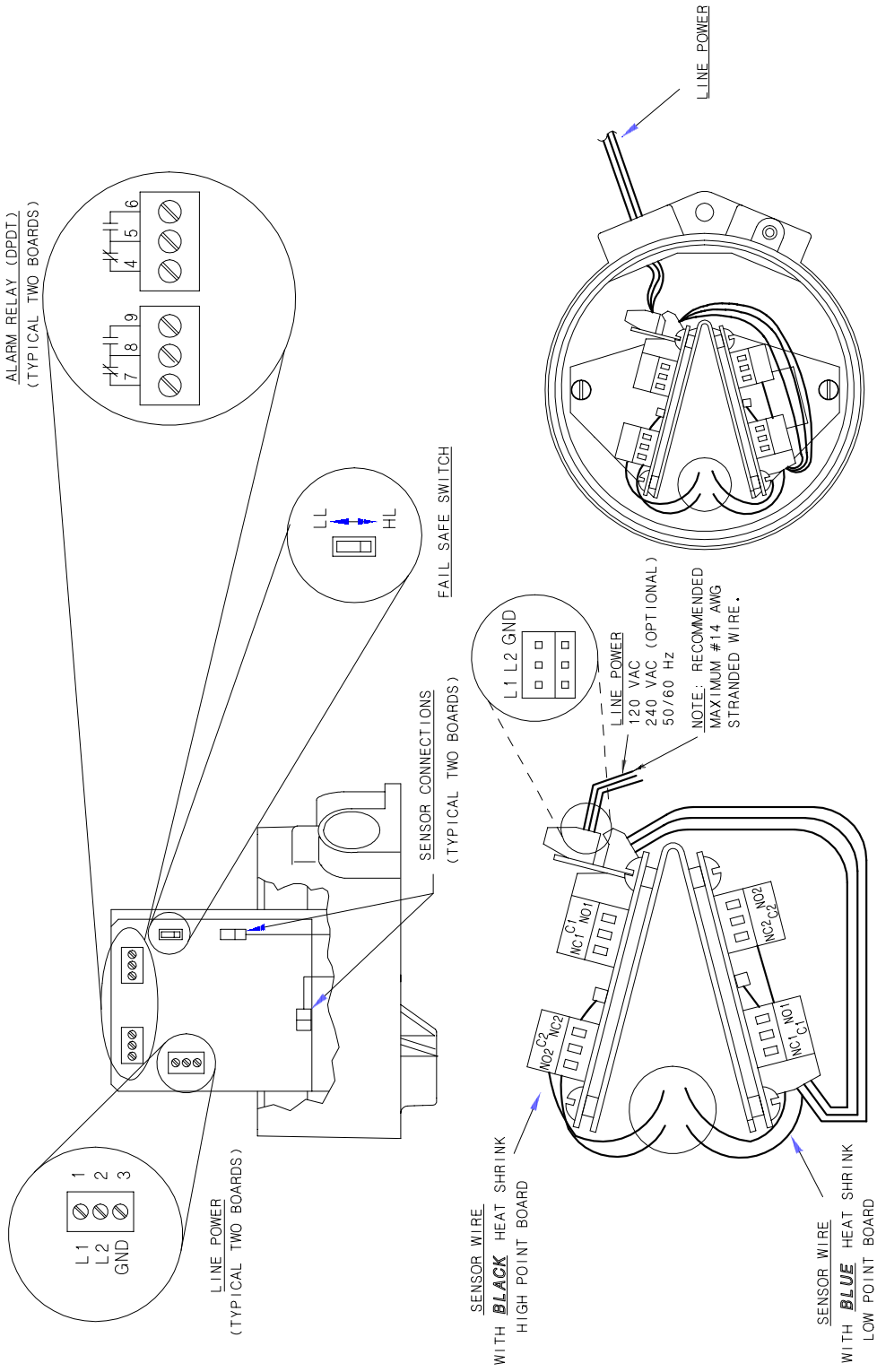


Figure 2-12
Wiring the 120/240 Vac
Integral Dual Gap Switch

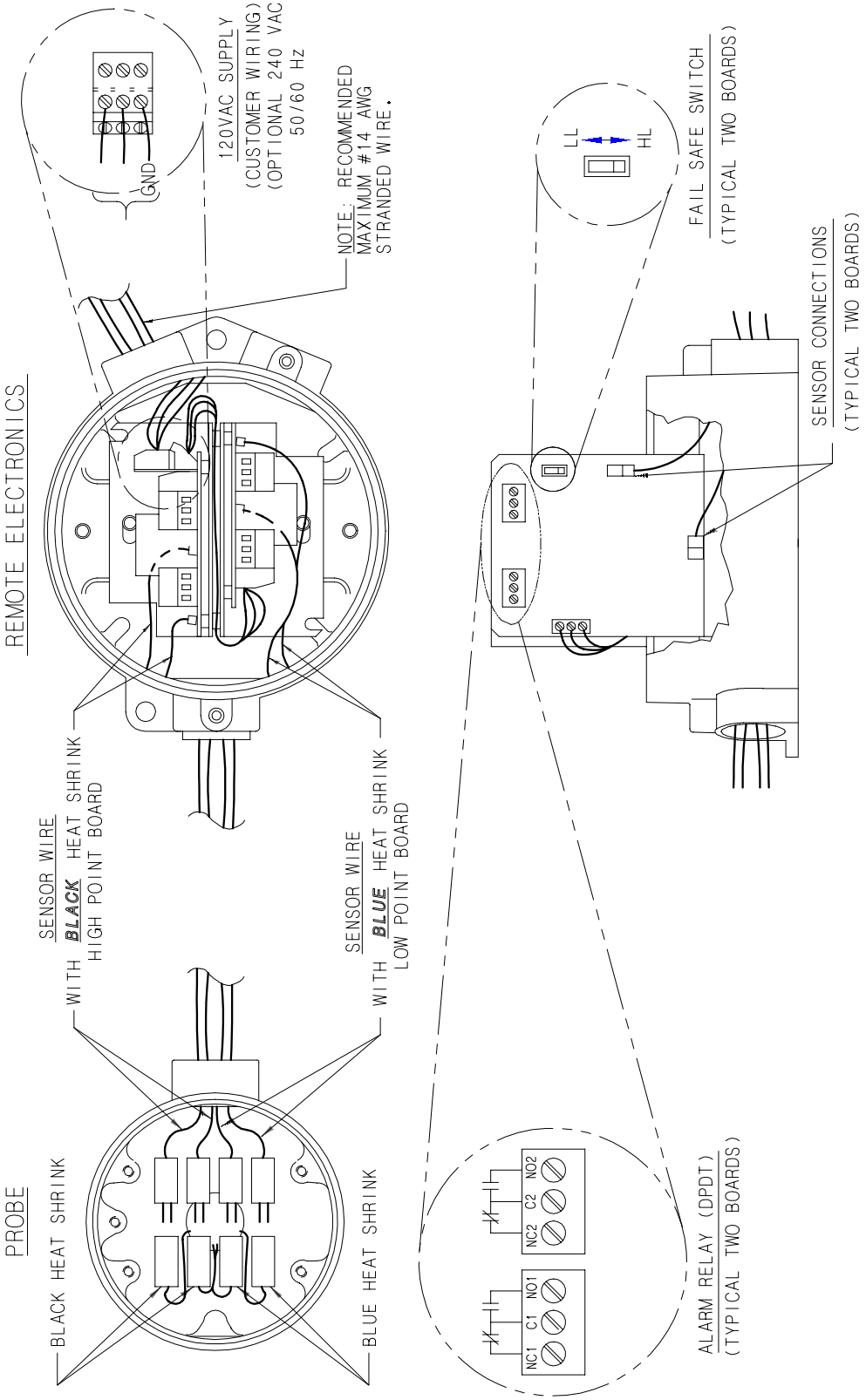


Figure 2-13
Wiring the 120/240 Vac
Remote Dual Gap Switch

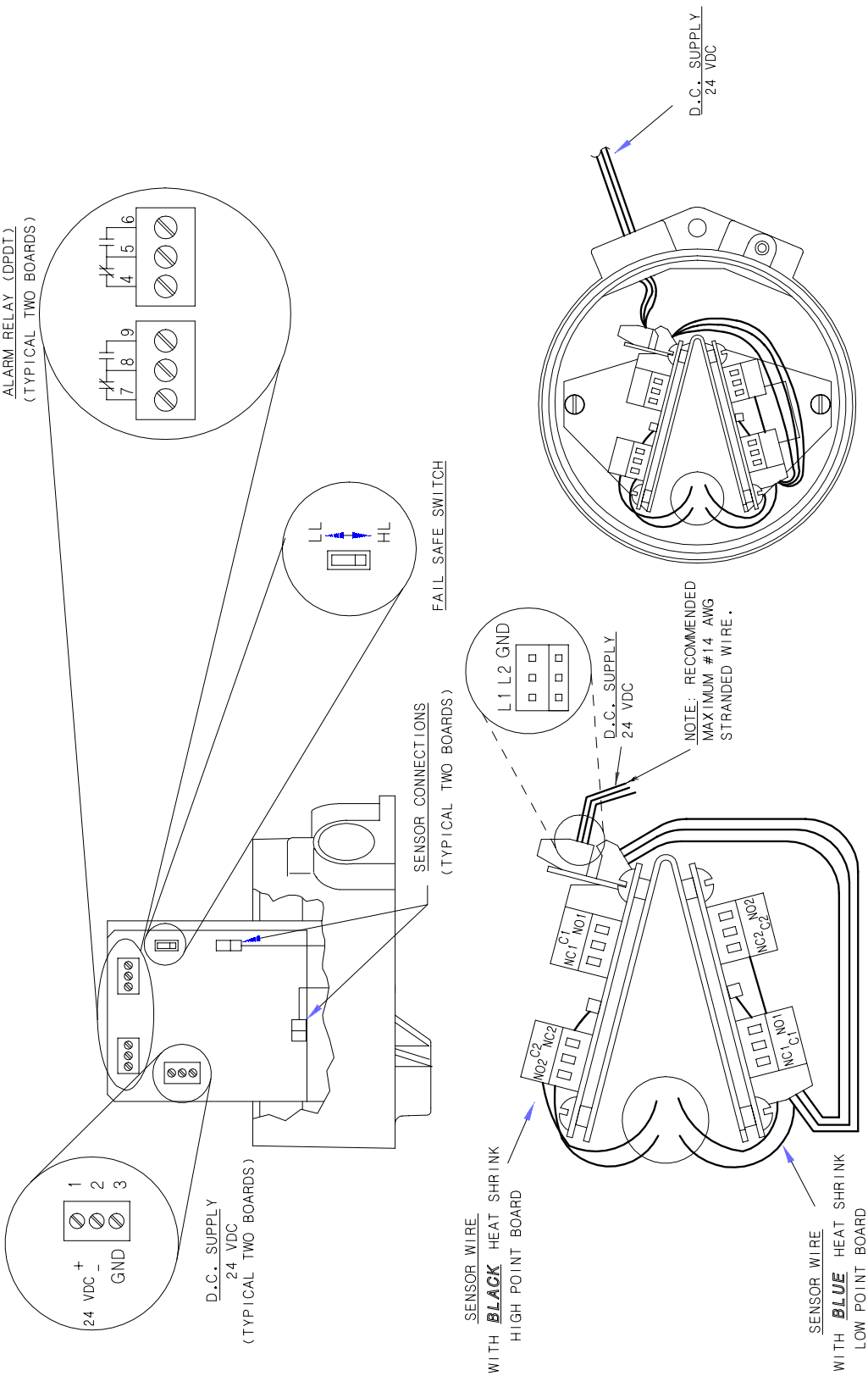


Figure 2-14
Wiring the 24 Vdc
Integral Dual Gap Switch

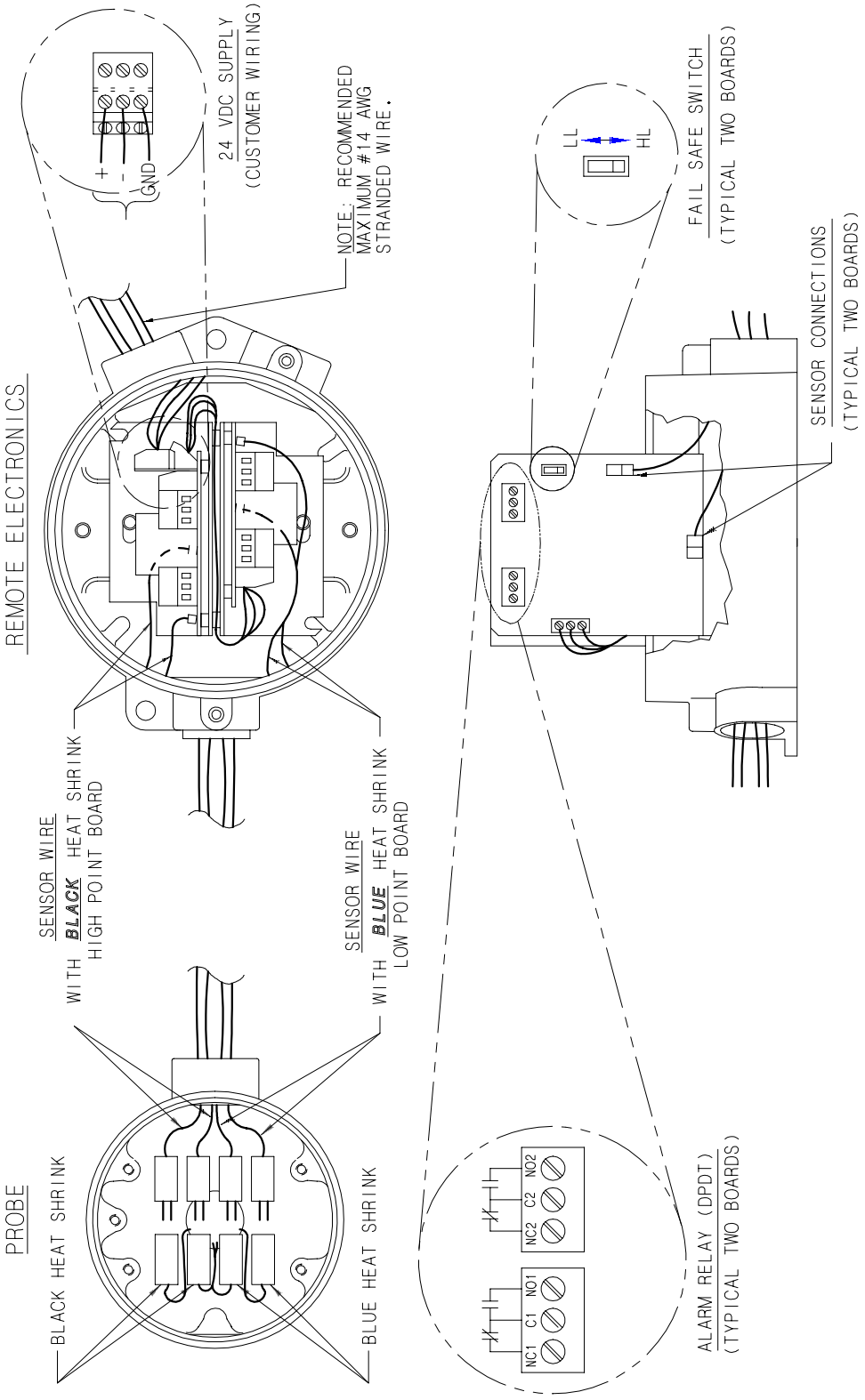


Figure 2-15
Wiring the 24 Vdc
Remote Dual Gap Switch

SECTION 3 OPERATION

The VeriGAP switch operates successfully upon applying power to the unit . No further calibration or adjustments are necessary.

3.1 Failsafe Selector

There is one operating switch on the instrument for failsafe selection.

Failsafe describes the level condition that causes the output signal to change states.

- High Level Failsafe (HLFS) means the output signal will change to the alarm state under high level conditions (indicating high level upon loss of power.
- Low Level Failsafe (LLFS) means the output signal will change to the alarm state under low level conditions (indicating low level upon loss of power.
- The instrument is supplied in the failsafe mode that is requested when the order is placed (HLFS, if not specified).
- The failsafe is field selectable by changing slide switch S1 on the power side of the unit. See Figure 3-1.

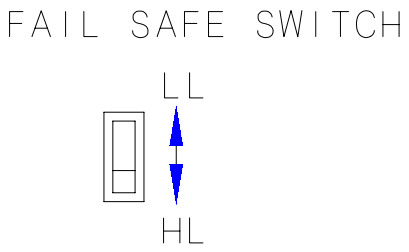


Figure 3-1
Failsafe Switch Settings

3.2 Manual Verify™ Test

As an option, the Manual Verify test feature performs a confidence test of the system by duplicating the same signal as a high-level alarm condition.

Simulating a high level with the Manual Verify test feature:

- confirms that the system is set up correctly for ISO 9000 purposes.
- checks the integrity and continuity of wiring connections.
- verifies that the sensing element is working properly.

The Manual Verify test is initiated by holding the magnetic key against the switch housing at the position indicated on the label marked TEST KEY AREA. If the switch is operating properly, the unit goes into alarm for approximately two seconds. If the switch is not operating properly, the unit goes into fault current condition.

3.3 AutoVerify™

As an option, the VeriGAP switch is equipped with an AutoVerify™ self-check circuit that checks the switch operation automatically every thirty seconds.

The AutoVerify test operates as follows:

a. If the switch is operating properly, the AutoVerify circuit shuts off and waits 20 seconds to test the switch again.

b. If the switch does not function properly , the unit goes into alarm (de-energizes the relay) and the yellow fault LED is lit. Push the blue reset button and wait for the next cycle. If fault is still indicated, refer to Section 4.

The Certify test is initiated by holding the magnetic key against the switch housing at the position indicated on the label marked TEST KEY AREA. The key must be held in this position until the circuit begins the AutoVerify test. This test occurs every five seconds. If the switch is operating properly, the unit goes into alarm for approximately two seconds. If the switch is not operating properly, the unit goes into fault current condition

SECTION 4
TROUBLESHOOTING

The 504-1000 Ultrasonic VeriGAP™ Switch is a solid-state device with no moving parts other than its relay, and requires no maintenance or adjustments. The units are designed to give years of unattended service.

A spare electronic chassis is recommended for every 10 units. In the event of a failed unit, this will prevent the interruption of a critical application while the unit is returned to the factory for repair.

In applications where liquids/products can coat or build up on the sensor tip over a period of time, it is recommended to use the Drexelbrook RF Admittance Point Level switches, which are not affected by coatings.

Proper operation of the gap switch can be verified by dipping the gap assembly in a small container of liquid (e.g. water). An audible click should be heard two seconds after submerging the gap assembly in liquid. If no relay click is heard, remove the equipment from the process.

- ☐ Check to see that the gap is not plugged by process material.
- ☐ Clean if required.
- ☐ Repeat the dip test.
- ☐ If no audible click is heard the instrument has failed.
- ☐ If spare parts are available find out whether the problem is caused by a defective gap assembly or by a defective electronics module. This is done by substituting a known good gap assembly or electonics module.

The gap assembly is removed by disconnecting the two coax cables from the electronics module.

- Gently pull the quick disconnect connectors at the end of the coax wires out of the electronics module circuit card.

- Loosen the set screw in the blue cast housing and unscrew the gap assembly from cast housing.

SECTION 5 SERVICE

5.1 Factory Service Assistance

If you are experiencing difficulty with your Drexelbrook equipment and attempts to locate the problem have failed:

- contact your local Drexelbrook representative,
- call the Service department toll-free at 1-800-527-6297 (in US and Canada) or 1-215-674-1234 (International),
- fax the following information to the Service department at 1-215-674-5117.

To expedite assistance, please provide the following information:

Instrument Model Number _____

Sensing Element Model Number and Length _____
_____

Coax Cable Length (remote systems) _____

Original Purchase Order Number _____

Material being measured _____

Temperature _____

Pressure _____

Agitation _____

Brief description of the problem _____
_____

Checkout procedures that have failed _____
_____
_____

5.2 Equipment Return

In order to provide the best service, any equipment being returned for repair or credit must be pre-approved by the factory.

In many applications, sensing elements are exposed to hazardous materials.

- OSHA mandates that our employees be informed and protected from hazardous chemicals.
- Material Safety Data Sheets (MSDS) listing the hazardous materials that the sensing element has been exposed to **must** accompany any repair.
- It is your responsibility to fully disclose all chemicals and decontaminate the sensing element.

5.2 Equipment Return (cont.)

To obtain a return authorization (RA#), contact the Service department at 1-800-527-6297 (US and Canada) or 1-215-674-1234 (International). Please provide the following information:

Model Number of Return Equipment _____

Serial Number _____

Original Purchase Order Number _____

Process Materials that equipment has been exposed to _____

MSDS sheets for any hazardous materials

Billing Address _____
_____

Shipping Address _____
_____

Purchase Order Number for Repairs _____

Please include a purchase order even if the repair is under warranty. If repair is covered under warranty, you will not be charged.

Ship equipment freight prepaid to:
AMETEK DREXELBROOK
205 KEITH VALLEY ROAD
HORSHAM, PA 19044
COD shipments will not be accepted.

5.3 Field Service

Trained field service personnel are available on a time-plus-expense basis to assist in start-ups, diagnosing difficult application problems, or in-plant training of personnel. Preventative Maintenance and Calibration Certification service contracts are also available to maintain plant efficiency. Contact the Service department for further information.

5.4 Customer Training

Instrument Training Seminars for customers are conducted at the factory. These sessions, guided by Drexelbrook engineers and specialists, provide detailed information on all aspects of level measurement, including theory and practice of instrument operation. Contact the Training Department for further information.

SECTION 6
SPECIFICATIONS

6.1 Electronics

—*Power Requirements*
120 Vac ± 50/60 Hz
240 Vac ± 10% 50/60 Hz
18-30 Vdc

—*Power Consumption*

120 Vac Unit	2.5 Watts
240 Vac Unit	1.5 Watts
24 Vdc Unit	2.5 Watts

—*Ambient Temperature*
-40°F to 160°F

—*Repeatability*
1/16 inch

—*Response Time*
2 seconds (Time Delay standard)

—*Fail Safe*
High Level or Low Level (field-selectable)

—*Relay*
DPDT

—*Contact Rating*
5A, 240 Vac, Resistive
5A, 30 Vdc, Resistive
4.9A, 240 Vac, Inductive
4.4A, 120 Vac, Inductive

—*Housing*
NEMA 1 to 4X, 5 and 12
FM Approved Explosionproof

6.2 Sensor

—Insertion Lengths
2, 6, 12, 18, or 24 inches standard (other lengths available)

—Wetted Materials
Standard 316 SS
Optional Alloy 20, Hastelloy "C", Teflon
(Consult factory for availability of other materials)

—Mounting

Metallic Sensors:	¾-inch NPT standard, flange mounting available.
Teflon Sensors:	1-inch NPT standard, threaded flange mounting available.
Seal Tyte™ Sensors:	Flange mounting only, 1-inch minimum flange

Gap
Single gap standard (404-1000)
Dual gap available (404-1060)

Process Temperature
-40°F to 250°F

Process Pressure
1000 psi maximum, metallic sensors
50 psi maximum, Teflon sensors

APPENDIX A
APPROVAL DRAWINGS

The following pages provide the FM and CSA approved control drawings

420-4-24-CD

FM & CSA CONTROL DRAWING FOR VeriGAP ULTRASIONIC POINT LEVEL SENSORS

MODEL	SHEETS
404-1000 SERIES	2
1100 SERIES	2
1300 SERIES	2
404-1200 SERIES	3-5

FM SENSOR SHEET 2

705-abcd-efg-h

a = BLANK OR 0

b = BLANK OR 0

c = BLANK, 0, 2 (DUAL POINT), 3 (SINGLE POINT/ADJUSTABLE), 4 (DUAL POINT/ADJUSTABLE)

d = 1, 2 TEMPERATURE

e = BLANK, 3, 6, CONSTRUCTION

f = BLANK OR 0

g = 1, 3, 5, 6, MATERIALS

h = 14 CHARACTER EXPANDED NUMBERING SYSTEM. DOES NOT AFFECT SAFETY.

APPROVED DRAWING
CHANGES TO THIS DRAWING REQUIRE AGENCY APPROVAL PER 440-0015-003
☒FM ☒CSA ☐KEMA

☐	☐
420-0004-067	
420-0004-076	
420-0004-036	

ISS.	EDO/DSR NO.	APP'D	DATE
5	9-01-202	THP	1/24/02
4	6-00-201	THP	6-23-00
3	6-96-212	OJM	8-22-97

CERTIFIED by ____
PO # ____
ENG ____
USER ____
DE # ____

SCALE NONE
UNLESS OTHERWISE STATED ALL DIMENSIONS IN INCHES (MM)

DR. CDW
CK. JJS 3-6-02

AMETEK®
DREXELBROOK
205 KEITH VALLEY RD
HORSHAM, PA 19044-9986
215-674-1234
FAX 215-674-2731

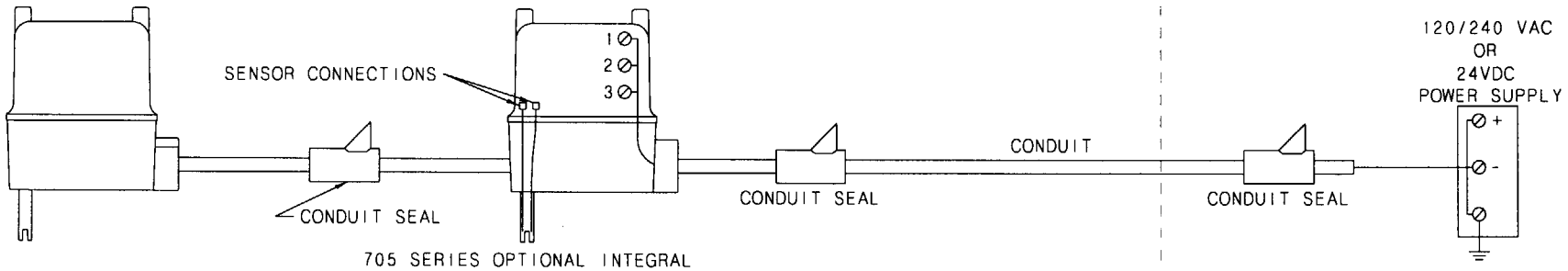
FM AND CSA CONTROL DRAWING FOR VeriGAP™ ULTRASONIC POINT LEVEL SENSORS

420-0004-024-CD SHT. 1 OF 5 ISS. 5

404-1000. 1100. 1300 SERIES
EXPLOSIONPROOF INSTALLATION

404-1000/1300
120/240 VAC
1 — L1
2 — L2
3 — GND

404-1100
24 VDC
1 — +
2 — -
3 — GND



705 SERIES OPTIONAL INTEGRAL
AND REMOTE ULTRASONIC SENSOR

FM AND CSA APPROVED ELECTRONICS

404-1ab0-cde-0f

a = 0.1.3 SUPPLY VOLTAGE
b = 0.6 SINGLE OR DUAL POINT
c = AGENCY F=FM C=CSA
d = 0.1 OPTIONS
e = 1.2.3.4.6.8.9.C.F HOUSING WHEN e=2.4 OR 3.6
EXPLOSIONPROOF ENCLOSURE 285-0001-414
285-0001-415 REQUIRED FOR REMOTE SENSOR
INSTALLATION
f = 0.1.2 FAIL SAFE
NOTE: WHEN e = 1 CHASSIS MUST BE
MOUNTED IN FM OR CSA APPROVED
EXPF. HOUSING.
DUAL POINT USES 5" HOUSING.
ALL OTHERS 4"

NOTES:

1. FOR EXPLOSIONPROOF INSTALLATIONS CONDUIT SEALS MUST BE WITHIN 2" OF TRANSMITTER HOUSING.
2. INSTALL PER NEC OR CEC.
3. FOR 404-1060 CONNECTIONS SEE DRAWING 504-1600-001-CD1.
4. REFER TO FOLLOWING DRAWINGS FOR RELAY CONNECTIONS: 504-1000-001-CD1. 504-1100-001-CD1. 504-1600-001-CD1. 504-1600-001-CD2.

CLASS I. II. III. DIVISON 1. GROUP A.B.C.D.E.F.G

NON-HAZARDOUS AREA

ISS.	EDO/DSR NO.	APP'D	DATE
5	9-01-202	THP	1/24/02
4	6-00-201	THP	6-23-00
3	6-96-212	OJM	8-22-97
2	5-95-212	OJM	5-13-96
1	12-94-204	THP	5-4-95

CERTIFIED by _____
PO # _____
ENG _____
USER _____
DE # _____

SCALE NONE
UNLESS OTHERWISE STATED ALL DIMENSIONS IN INCHES (MM)

DR. CDW
CK. JJS 3-6-02

AMETEK®
DREXELBROOK

205 KEITH VALLEY RD
HORSHAM, PA 19044-9986
215-674-1234
FAX 215-674-2731

FM AND CSA CONTROL DRAWING
FOR ULTRASONIC
POINT LEVEL SENSOR
TRANSMITTERS VeriGAP™

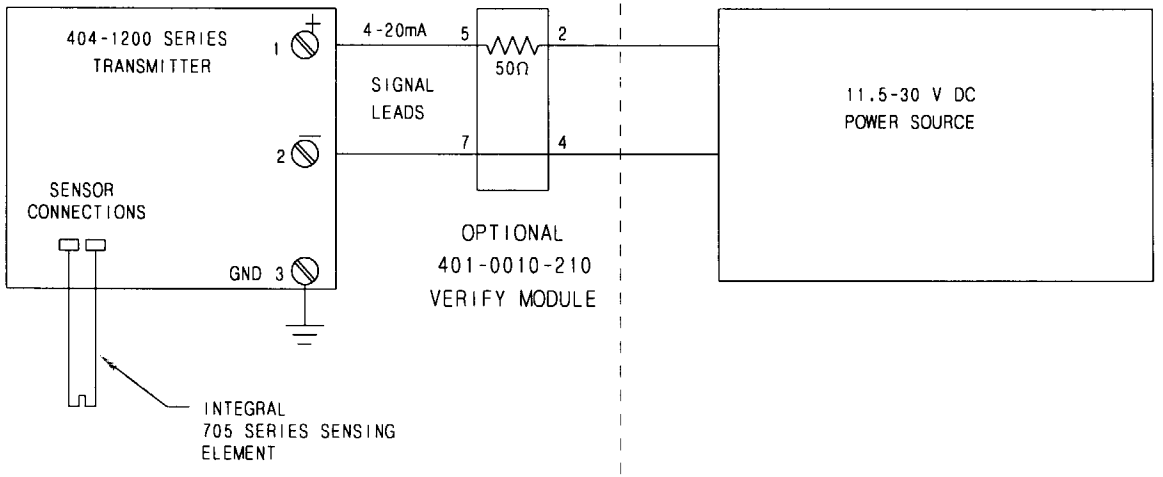
420-0004-024-CD

SHT. 2 OF 5

ISS. 5

NO. 420-0004-024-CD SHT2 OF 5

DIV. 2 LOOP. 404-1200 SERIES NO BARRIERS



SUITABLE FOR
CLASS I GROUPS A,B,C,D, AND
CLASS II GROUPS F,G AND
CLASS III.

WARNING FOR ALL SHEETS:

1. EQUIPMENT CONNECTED TO SIGNAL LEADS MUST NOT USE OR GENERATE MORE THAN 250V MAX.
2. SEE SHEET 3 FOR CLASS II AND CLASS III HOUSING NOTE.

DIVISION 2 AREA

SENSOR

705-efgh-ijk-l

e = BLANK OR 0
f = BLANK OR 0
g = BLANK OR 0
h = 1,2 TEMPERATURE
i = BLANK,3,6, CONSTRUCTION
j = BLANK OR 0
k = 1,3,5,6, MATERIALS
l = 14 CHARACTER EXPANDED NUMBERING SYSTEM. DOES NOT AFFECT SAFETY.

MODEL NUMBERS OF APPROVED TRANSMITTERS SHOWN ON SHEETS 3-5:

TRANSMITTERS

404-120a-Fbc-0d
a = 0 TIME DELAY
b = 0 OR V OPTIONS
c = 1,7,A HOUSING
d = 0,1 FAIL SAFE

NOTE:
WHEN c = 1 CHASSIS MUST BE MOUNTED IN APPROVED HOUSING.

ISS.	EDO/DSR NO.	APP'D	DATE
5	9-01-202	DRF	1/24/02
4	6-00-201	THP	6-23-00
3	6-96-212	OJM	8-22-97
2	5-95-212	OJM	5-13-96
1	12-94-204	THP	5-4-95

CERTIFIED by _____
PO # _____
ENG _____
USER _____
DE # _____

SCALE NONE
UNLESS OTHERWISE STATED ALL DIMENSIONS IN INCHES (MM)

DR. CDW
CK. TJS 3-6-02

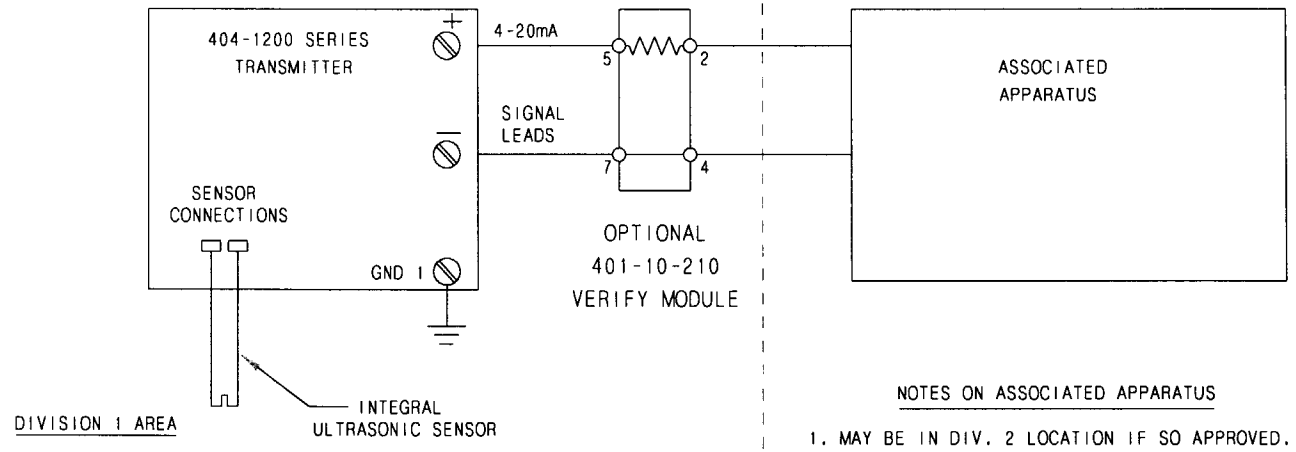
AMETEK®
DREXELBROOK
205 KEITH VALLEY RD
HORSHAM, PA 19044-9986
215-674-1234
FAX 215-674-2731

FM CONTROL DRAWING FOR
ULTRASONIC
POINT LEVEL TRANSMITTER

420-0004-024-CD SHT. 3 OF 5 ISS. 5

NO. 420-0004-024-CD SHT3 OF 5

404-1200 SERIES ENTITY APPROVAL



SENSING ELEMENTS AND CABLE ARE
INTRINSICALLY SAFE FOR
CLASS I GROUPS A.B.C.D.
CLASS II GROUPS E.F.G.
CLASS III.

TRANSMITTER ENTITY PARAMETERS

Vmax = 35 V
Imax = 140 mA
Ci = 0 uF
Li = 0 mh

NOTES ON ASSOCIATED APPARATUS

1. MAY BE IN DIV. 2 LOCATION IF SO APPROVED.
2. CABLE CAPACITANCE AND INDUCTANCE (C = 60pF/FT. AND L = 0.2uH/FT. MAY BE USED) PLUS TRANSMITTER Ci AND Li MUST NOT EXCEED Ca AND La OF ASSOCIATED APPARATUS.
3. MUST BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
4. MUST NOT BE CONNECTED IN PARALLEL.
5. MUST BE INSTALLED IN ACCORDANCE WITH NEC IN AN ENCLOSURE MEETING THE REQUIREMENTS OF ANSI/ISA S82.

CLASS II AND CLASS III HOUSING NOTE:

USE ONLY APPROVED DUST IGNITIONPROOF HOUSINGS. WITH DUST TIGHT CABLE FITTINGS OR THREADED CONDUIT. FOR ENVIRONMENTAL PROTECTION IN CLASS II DIV. 1 AND 2 APPLICABLE GROUPS E. F. G AND CLASS III DIV. 1 AND 2.

CERTIFIED by _____
PO # _____
ENG _____
USER _____
DE # _____

ISS.	EDO/DSR NO.	APP'D	DATE
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4	6-00-201	THP	6-23-00
3	6-96-212	OJM	8-22-97
2	5-95-212	OJM	5-13-96
1	12-94-204	THP	5-4-95

SCALE NONE
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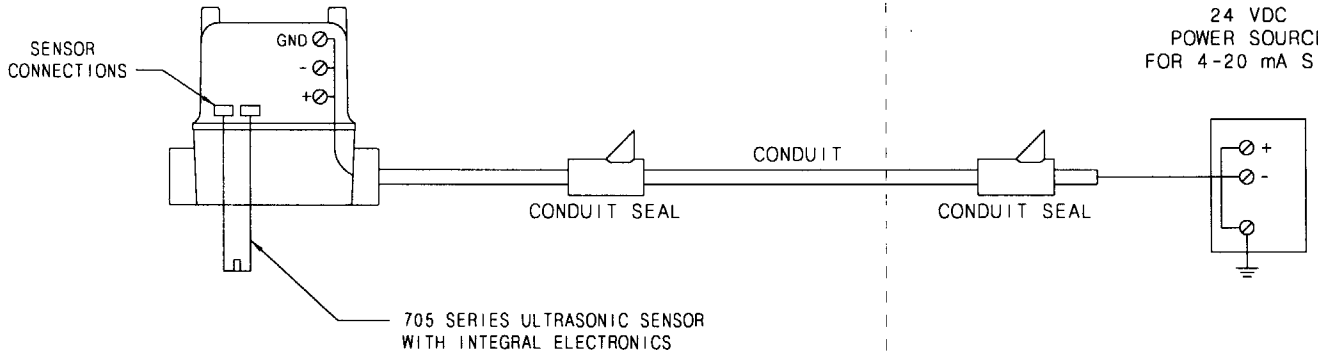
420-0004-024-CD SHT. 4 OF 5 ISS. 5

NO. 420-0004-024-CD SHT4 OF 5

EXPLOSIONPROOF 404-1200 SERIES INSTALLATION



MAXIMUM
NON-HAZARDOUS AREA
VOLTAGE MUST NOT
EXCEED 250 Vrms.

NOTES:

1. FOR EXPLOSIONPROOF INSTALLATIONS CONDUIT SEALS MUST BE WITHIN 2 INCHES OF TRANSMITTER HOUSING.
2. EXPLOSIONPROOF INSTALLATIONS MUST COMPLY WITH NEC.

CLASS I.II.III. DIVISON 1. GROUP A.B.C.D.E.F.G

NON-HAZARDOUS AREA

ISS.	EDO/DSR NO.	APP'D	DATE
5	9-01-202	JJS	1/24/02
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420-0004-024-CD

SHT. 5 OF 5

ISS. 5

NO. 420-0004-024-CD SHT5 OF 5

AMETEK®

DREXELBROOK

An ISO 9001 Certified Company

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