

VeriGAP™ 504-1000 Series

Line Powered Ultrasonic Gap Switch



Guaranteed Safety

Verify™ circuitry checks that the complete system (crystals, crystal bonding, electronics and relay) is functioning correctly.

No Calibration Required

No opportunity for error in calibration or adjustments in gain controls.

Local Control

This line-powered version of the 504 Series gap switch has its 5A DPDT relay where you need it...built into the unit and close to pumps, valves, horns and other final control elements.

Wide Range of Applications

Performance is unaffected by changes in liquid density, pressure, or electrical properties.

Major Breakthrough

The VeriGAP level switch is the only safe gap switch available for high level alarming or indication. All other gap switches are inherently low level fail safe only. With most low-level fail-safe devices, either an absence of material or a component failure will indicate a low level alarm. With most high level fail-safe devices, the presence of material will only trigger an alarm if the system is functioning properly. A component failure, such as separation of the crystals, will cause the device to indicate an absence of material. This will result in a normal condition, even if the tank is over filling.

Out performs Generic Gap Switches

VeriGAP overcomes the problems inherent in generic gap switches by testing the entire system (crystals, crystal bonding, electronics and relay) on demand, eliminating the possibility of a spill. Unlike other gap switches with so-called self-testing features, the VeriGAP requires no calibration. This eliminates the potential for error or spills during installation and setup.

Ideal for Liquid Measurement

The VeriGAP is ideal for high and low point level measurements in liquids. It is not affected by variations in viscosity, density, pressure, temperature, or electrical properties.



Point Level Measurement

VeriGAP™ 504-1000 Series

Specifications

Electronics Model # 404-1000-9

Input Power:

120Vac +/- 20% (240Vac or 24Vdc +/-6V opt.)

Level Output:

DPDT relay

Contact Ratings:

120Vac: 6A resistive, 4.4A inductive, 1/6HP

240Vac: 6A resistive, 4.9A inductive, 1/3HP

30Vdc: 6A resistive

Min. Rating 100mA / 12VDC

Max. Cont. Carrying Current

7A

Operating Temperature*:

-40°F to 160°F (-40°C to 70°C)

Fail-Safe:

High or low level (field-selectable)

Repeatability:

1/16 inch (1.59 mm)

Response Time:

2 seconds

Housing:

Nema 1-4X, 5 and 12

Area Classifications:

Groups A,B,C,D, Class I, Div. 1 or 2. Groups E,F,G, Class II, Div. 1 or 2

RFI Effect:

No effect on operating point from a 5 watt field @ 27, 150, or 450 MHz

Sensor Model # 705-1-1

Material:

316 SS

Optional Hastelloy C

Mounting:

3/4 inch NPT

Process Temperature:

Standard: -40°F to 250°F (-40°C to 121°C)

Optional: -40°F to 350°F (-40°C to 177°C)

Process Pressure:

1000 psi (69 BAR)

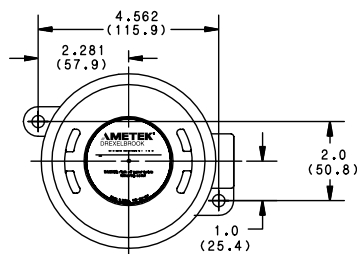
Operating Point:

3/8 inch (9.523 mm) from tip

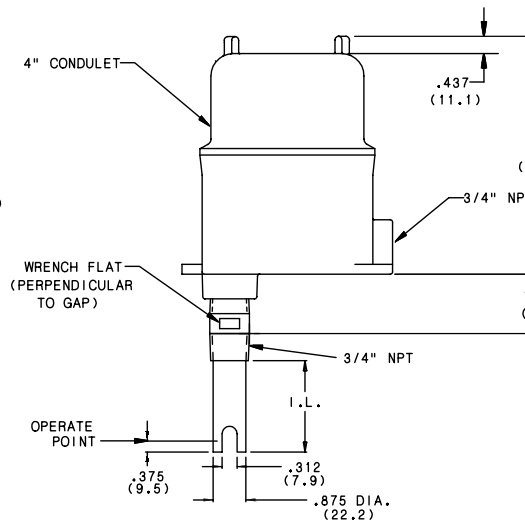
Approvals:



Mounting Dimensions



Dimensions in inches (mm).



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504-1000-001 VeriGAP™ Point Level Control featuring 705-1-1 Sensing Element



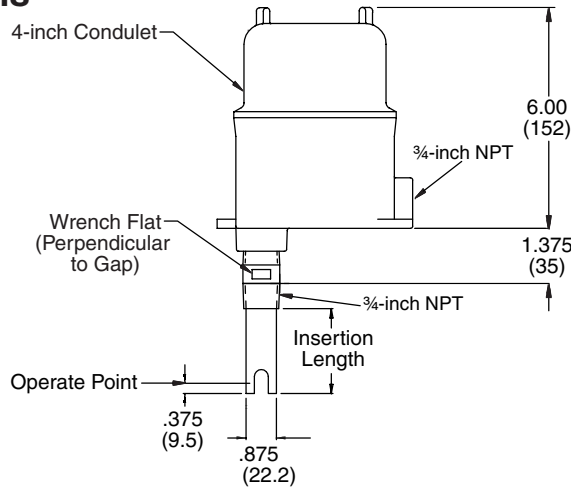
Typical Applications

- Containment Dikes
- Waste Sumps
- Overfill Protection

Do not use with:

- Materials corrosive to 316 SS
- Powders or Granulars
- Methyl ethyl ketone
- Heavy Coating Slurries

Dimensions in inches (mm)



Process Specifications Sensing Element

Pressure and Temperature Limits
1000 psi (69 BAR) @ 250°F (121°C)
Higher temperature units available.

Process Wetted Parts

316 SS
Consult factory for other materials.

For complete mounting and wiring details, request drawing 504-1000-001-CD.

Model Number

504 - 1 0 0 0 - 0 0 1 VeriGAP Series Point Level Control

Power
0 = 120 Vac
1 = 24 Vdc
3 = 240 Vac

0 = Integral
7 = Remote

404 - 1 0 0 0 - 0 0 9 - 0 0 Electronic Unit

Power
0 = 120 Vac
1 = 24 Vdc
3 = 240 Vac

Gap
0 = Single Gap
6 = Dual Gap

Verify
0 = Without Verify
V = With Verify (requires 5" housing)
A = With AutoVerify (requires 5" housing)

Denotes default value

Fail Safe
0 = High Level Fail Safe
1 = Low Level Fail Safe
Units with Verify require HLFS.

Housing options
8 = 4" Integral with Drexelcote
9 = 4" Integral Nema 4X
C = 5" Integral with Drexelcote "Y" hub
F = 5" Integral with "Y" hub
C = 5" Integral with Drexelcote (504-1060-001)
F = 5" Integral (standard for Dual Gap 504-1060-001)

K = 5" Integral with magnetic switch (504-1000-008)
L = 5" Integral with magnetic switch and Drexelcote (504-1000-008)
K = 5" Integral (504-1000-021)
L = 5" Integral (504-1000-021)

Units with Verify require 5-inch housing.

705 - 0001-001- I 002.0 BA0 Sensing Element

Operating Point
Operating Point in inches = 000.0
(example 48 inches = 048.0)
Insertion Length = operating point + 3/8"
Maximum recommended insertion length = 60 inches
For longer lengths, consult factory.

Probe Mountings

BA0 = 3/4" NPT (standard) BIB = 3" 150# RF 316SS BEB = 1 1/2" 300# RF 316SS BNB = 6" 300# RF 316SS
BBB = 1" 150# RF 316SS BKB = 4" 150# RF 316SS BGB = 2" 300# RF 316SS
BDB = 1 1/2" 150# RF 316SS BMB = 6" 150# RF 316SS BJB = 3" 300# RF 316SS
BFB = 2" 150# RF 316SS BCB = 1" 300# RF 316SS BLB = 4" 300# RF 316SS

Denotes default value

380 - 0 025 -525 Cable (For Remote Package Only) (Two Cables required)

Cable Length
025 = 25 feet (standard) 020 = 20 feet
010 = 10 feet 030 = 30 feet
015 = 15 feet

285-0001-35 8 Sensing Element Condulet (For Remote Package Only)

Condulet Option
8 = Standard
9 = With Drexelcote

504-1000-008 VeriGAP™ Point Level Control featuring 705-1-601 Sensing Element for Sanitary Applications

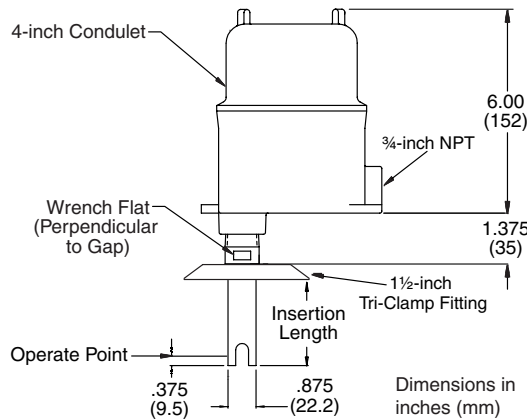


Typical Applications

- Milk
- Juices
- Beer (ignores foam)

Do not use with:

- Materials corrosive to 316 SS
- Powders or Granulars
- Heavy Coating Slurries



Process Specifications Sensing Element

Pressure and Temperature Limits
1000 psi (69 BAR) @ 250°F (121°C) or
Higher temperature units available.

Process Wetted Parts

316 SS with 3A-approved sanitary fitting
Consult factory for other materials.

For complete mounting and wiring
details, request drawing
504-1000-1-CD1.

Model Number

504 - 1 0 0 0 - 0 0 8 VeriGAP Series Point Level Control

Power
0 = 120 Vac
1 = 24 Vdc
3 = 240 Vac

0 = Integral
7 = Remote

404 - 1 0 0 0 - 0 0 9 - 0 0 Electronic Unit

Power
0 = 120 Vac
1 = 24 Vdc
3 = 240 Vac

Gap
0 = Single Gap
6 = Dual Gap

Verify
0 = Without Verify
V = With Verify (requires 5" housing)
A = With AutoVerify (requires 5" housing)

Housing options
8 = 4" Integral with Drexelcote
9 = 4" Integral Nema 4X
C = 5" Integral with Drexelcote "Y" hub
F = 5" Integral with "Y" hub
C = 5" Integral with Drexelcote (504-1060-001)

Fail Safe
0 = High Level Fail Safe
1 = Low Level Fail Safe
Units with Verify require HLFS.

F = 5" Integral with (standard for Dual Gap 504-1060-001)
K = 5" Integral with magnetic switch (504-1000-008)
L = 5" Integral with magnetic switch and Drexelcote (504-1000-008)
K = 5" Integral (504-1000-021)
L = 5" Integral (504-1000-021)

Denotes default value

Units with Verify require 5-inch housing.

705 - 0001 - 601 - I 002.0 BC2 Sensing Element

Operating Point
Operating Point in inches = 000.0
(example 48 inches = 048.0)
Insertion Length = operating point + 3/8"
Maximum recommended insertion length = 60 inches
For longer lengths consult factory

Probe Mountings

- BC2** = 1 1/2" Tri clamp 316SS (Standard)
- BE2** = 2" Tri clamp 316SS
- BJ2** = 3" Tri clamp 316SS
- BL2** = 4" Tri clamp 316SS

Denotes default value

380 - 0 025 - 525 Cable (For Remote Package Only) (Two Cables required)

Cable Length
025 = 25 feet (standard) 020 = 20 feet
010 = 10 feet 030 = 30 feet
015 = 15 feet

285 - 0001 - 35 8 Sensing Element Condulet (For Remote Package Only)

Condulet Option
8 = Standard
9 = With Drexelcote

504-1000-021 VeriGAP™ Point Level Control featuring 700-31-1 Sensing Element with Adjustable Insertion Length



Typical Applications

- Tank Car Loading
- Containment Dikes
- Waste Sumps
- Overfill Protection

Do not use with:

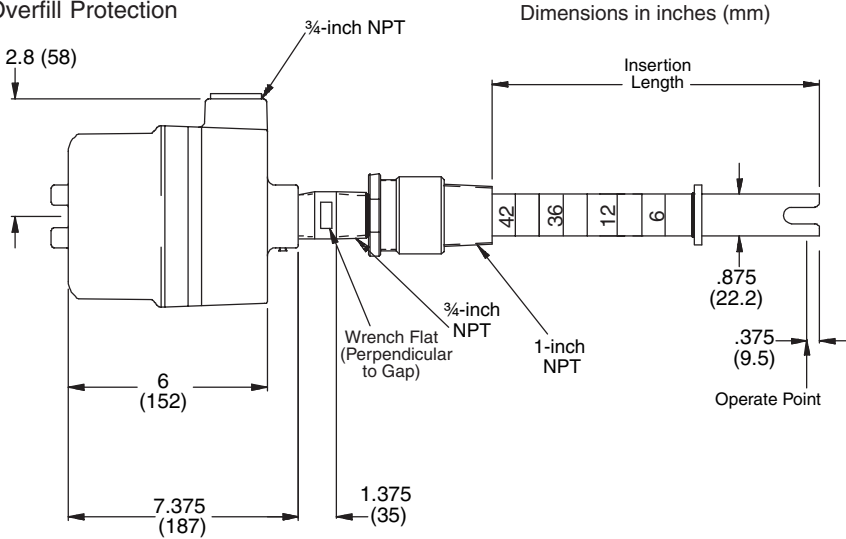
- Materials corrosive to 316 SS
- Powders or Granulars
- Heavy Coating Slurries

Process Specifications Sensing Element

Pressure and Temperature Limits:
50 psi (3.5 BAR) @ 250°F (121°C)
Higher temperature units available.

Process Wetted Parts:
316 SS
Consult factory for other materials.

For complete mounting and wiring details, request drawings 504-1000-001-CD3.



Model Number

504 - 1 0 0 0 - 0 21 VeriGAP Series Point Level Control

Power
0 = 120 Vac
1 = 24 Vdc
3 = 240 Vac
0 = Integral
7 = Remote

404 - 1 0 0 0 - 0 0 9 - 0 0 Electronic Unit

Power
0 = 120 Vac
1 = 24 Vdc
3 = 240 Vac
Gap
0 = Single Gap
6 = Dual Gap
Verify
0 = Without Verify
V = With Verify (requires 5" housing)
A = With AutoVerify (requires 5" housing)
Housing options
8 = 4" Integral with Drexelcote
9 = 4" Integral Nema 4X
C = 5" Integral with Drexelcote "Y" hub
F = 5" Integral with "Y" hub
L = 5" Integral with Drexelcote (504-1060-001)

Denotes default value

Fail Safe
0 = High Level Fail Safe
1 = Low Level Fail Safe
Units with Verify require HLFS.

F = 5" Integral with (standard for Dual Gap 504-1060-001)
K = 5" Integral with magnetic switch (504-1000-008)
L = 5" Integral with magnetic switch and Drexelcote (504-1000-008)
K = 5" Integral (504-1000-021)
L = 5" Integral (504-1000-021)

Units with Verify require 5-inch housing.

705 - 031 - 0001 - I 036.0 BBO Sensing Element

Operating Point
Operating Point in inches = 000.0
(example 48 inches = 048.0)
Insertion Length = operating point + 3/8"
Maximum recommended insertion length = 48 inches
For longer lengths, consult factory.

Denotes default value

Probe Mounting
BBO = 1" NPT (standard)

380 - 0 025 - 525 Cable (For Remote Package Only) (Two Cables required)

Cable Length
025 = 25 feet (standard)
010 = 10 feet
015 = 15 feet
020 = 20 feet
030 = 30 feet

285 - 0001 - 35 8 Sensing Element Condulet (For Remote Package Only)

Condulet Option
8 = Standard

504-1060-001 VeriGAP™ Point Level Control featuring 700-21-1 Sensing Element with Dual Gap

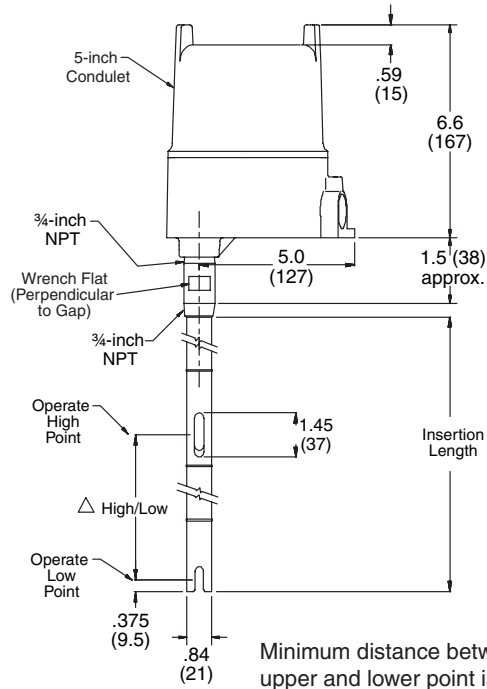


Typical Applications

- Batching Processes
- Waste Sumps
- Pump Control

Do not use with:

- Materials corrosive to 316 SS
- Powders or Granulars
- Heavy Coating Slurries



Process Specifications Sensing Element

Pressure and Temperature Limits
1000 psi (69 BAR) @ 250°F (121°C)

Process Wetted Parts
316 SS

Consult factory for other materials.

For complete mounting and wiring details, request drawing 504-1060-001-CD1.

Model Number

504 - 1 0 6 0 - 0 0 1 VeriGAP Series Point Level Control
404 - 1 0 0 0 - 0 0 9 - 0 0 Electronic Unit

Power	Gap	Verify	Housing options	Fail Safe
0 = 120 Vac 1 = 24 Vdc 3 = 240 Vac	0 = Single Gap 6 = Dual Gap	0 = Without Verify V = With Verify (requires 5" housing) A = With AutoVerify (requires 5" housing)	8 = 4" Integral with Drexelcote 9 = 4" Integral Nema 4X C = 5" Integral with Drexelcote "Y" hub F = 5" Integral with "Y" hub C = 5" Integral with Drexelcote (504-1060-001)	0 = High Level Fail Safe 1 = Low Level Fail Safe Units with Verify require HLFS.

Denotes default value

705 - 0001-021- I 004.0 BAO 02.0 Sensing Element

Lower Operating Point
Operating Point in inches = 000.0
(example 48 inches = 048.0)
Insertion Length = operating point + 3/8"
Maximum recommended insertion length = 60 inches
For longer lengths, consult factory.

- Probe Mountings**
- | | |
|-----------------------------------|-----------------------------------|
| BAO = 3/4" NPT (standard) | BCB = 1" 300# RF 316SS |
| BBB = 1" 150# RF 316SS | BEB = 1 1/2" 300# RF 316SS |
| BDB = 1 1/2" 150# RF 316SS | BGB = 2" 300# RF 316SS |
| BFB = 2" 150# RF 316SS | BJB = 3" 300# RF 316SS |
| BIB = 3" 150# RF 316SS | BLB = 4" 300# RF 316SS |
| BKB = 4" 150# RF 316SS | BNB = 6" 300# RF 316SS |
| BMB = 6" 150# RF 316SS | |

Upper Operating Point
Operating Point in inches = 00.0
(example 12 inches = 12.0)

Denotes default value

Units with Verify require 5-inch housing.