



HENNLICH

MERES

RADAROVÝ HLADINOMĚR GENESIS ED1/ED2

DESCRIPTION

The Genesis Multiphase Detector is a Time Domain Reflectometry (TDR)-based, 24 VDC level detector designed to accurately measure the various layers in interface level measurement applications. Encompassing a number of significant engineering accomplishments, this leading edge level detector is designed to provide measurement performance beyond that of many of the more traditional technologies.

Utilizing patented "Top-Down" and "Bottom-Up" signals, along with advanced level detection algorithms, this single device can be used in a wide variety of interface applications ranging from very light hydrocarbons to water-based media.

This detector, like other Magnetrol devices, is designed to maximize ease of wiring, configuration, and viewing of the versatile graphic LCD display.

The Genesis supports both the Field Device Integration (FDI) and Enhanced DD (EDDL) standards, which allow viewing of valuable configuration and diagnostic information in tools such as PACTware™, AMS Device Manager, and various HART® Field Communicators.

APPLICATIONS

MEDIA: Hydrocarbons to water-based media (Dielectric Constant $\epsilon_r = 1.4-100$)

VESSELS: Most process, separator, or storage applications up to rated process temperature and pressure.

CONDITIONS: All interface measurement and control applications including those with thick/dynamic emulsion layers, process conditions exhibiting foam, surface agitation, high fill/empty rates, and varying dielectric media or specific gravity.

Measures Multiple Phases
within Interface Applications



FEATURES

- 24 VDC multiphase detector with up to four (4) 4-20mA outputs for convenient control of top level, top of emulsion, water level, and sediment
- Concurrent Top-Down and Bottom-Up signal generation
- Level measurement not affected by changing media characteristics.
- No need to move levels for calibration
- 4-button keypad and graphic LCD display allow for convenient viewing of configuration parameters and echo curves
- Proactive diagnostics advise not only what is wrong, but also offer troubleshooting tips.
- Probe designs up to +200 °C/70 bar (+400 °F/1000 psi)
- Main electronics can be remote-mounted up to 30 m (100 feet) away from the probe.
- No moving parts

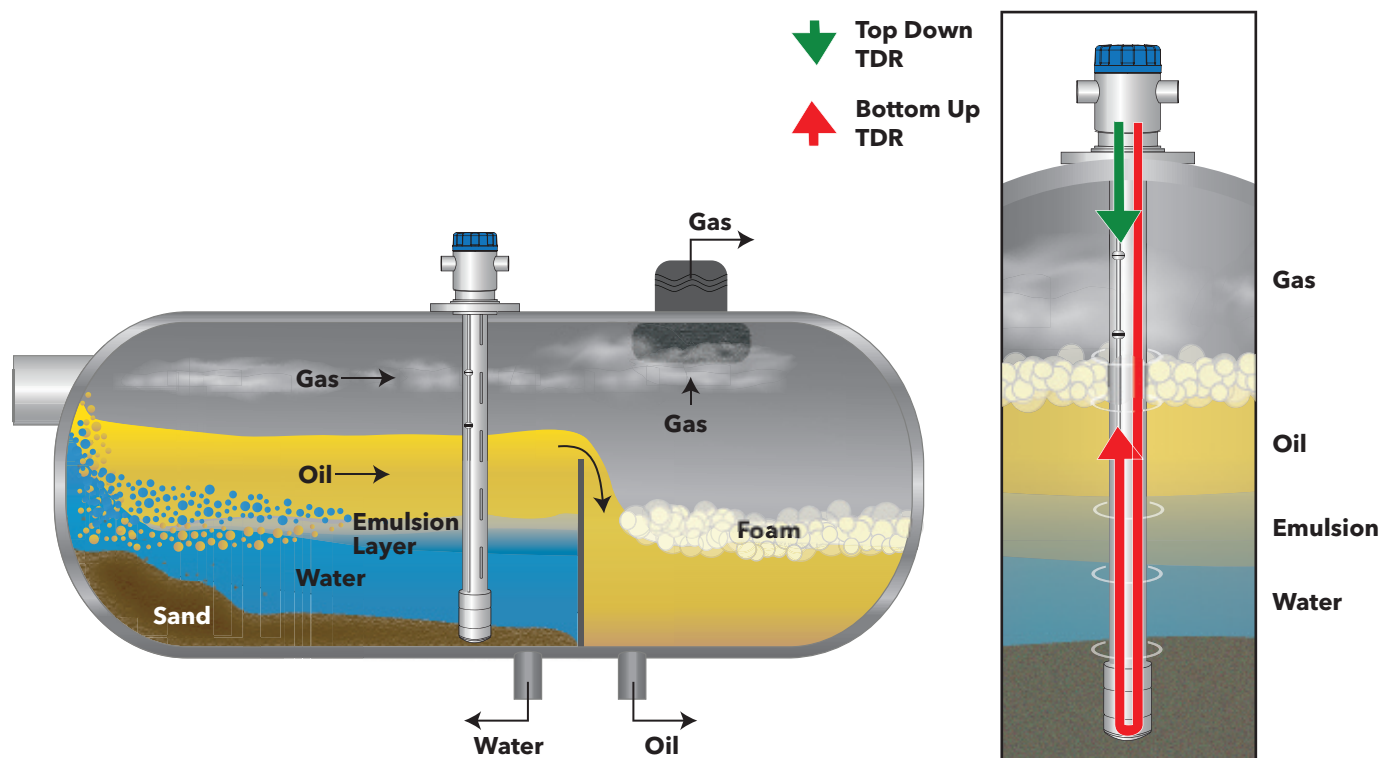
TECHNOLOGY

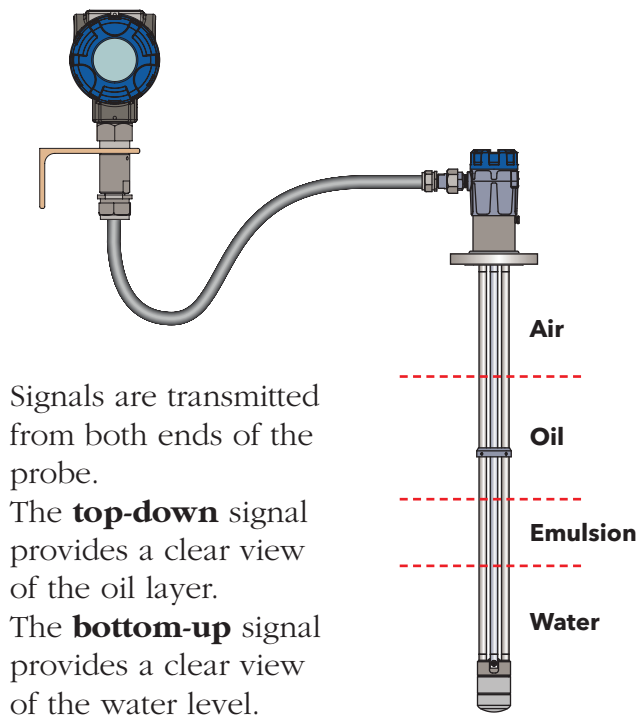
PRINCIPLE OF OPERATION

The Genesis is a multiphase level detector based upon the technology of Time Domain Reflectometry (TDR). The device utilizes pulses of electromagnetic energy transmitted along a physical probe. From a "Top-Down" perspective, when a pulse reaches a surface that has a higher dielectric constant than air ($\epsilon_r = 1$), a portion of the pulse is reflected. The time of flight of the pulse is then measured via high speed timing circuitry that provides an accurate measure of the liquid level. The amplitude of the reflection depends on the dielectric constant of the product, with a higher dielectric constant yielding a larger reflection.

In addition to sending high frequency energy down the probe to detect upper (or total) level, the Genesis sends energy up the probe to detect various other levels that may be present; including the top of an emulsion layer, bottom of an emulsion layer (water level) and sediment.

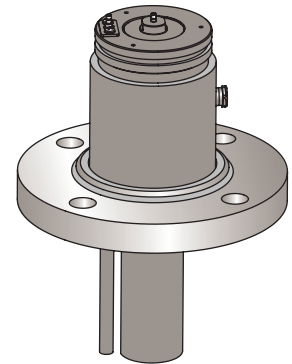
This innovative form of TDR-based measurement, combining "Top-Down" and "Bottom-Up" signal processing utilizing sophisticated and patented algorithms, makes multiphase level detection possible.



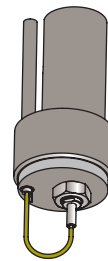


Two Signals

One transmitting for the top-down measurement.



One transmitting for the bottom-up measurement.



GENESIS PROBE OVERVIEW

The coaxial probe is the most efficient of all TDR probe configurations and should be the first consideration in all applications. Analogous to the efficiency of coaxial cable, a coaxial probe allows almost unimpeded movement of the high frequency pulses throughout its length.

The electromagnetic field that develops between the inner rod and outer tube is completely contained and uniform down the entire length of the probe. This means that the coaxial probe is immune to any proximity affects from other objects in the vessel, and therefore, in essence, it can be used anywhere that it can mechanically fit.

The efficiency and overall sensitivity of a coaxial configuration yields robust signal strength, even in extremely low dielectric ($\epsilon_r \geq 1.4$) applications. The sensitivity of this “closed” design, however, also makes it more susceptible to measurement error in applications that can have coating and buildup.

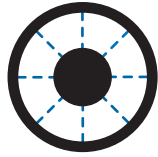
As is typical for most level measurement technologies, choosing the proper sensing element is the most important aspect in the decision-making process. The probe configuration establishes fundamental performance characteristics.

PROBE OVERVIEW

TWO STYLES OF GENESIS PROBES

ENLARGED COAXIAL

The standard coaxial offering for the Genesis is an Enlarged diameter probe that can be generally used for most clean applications.

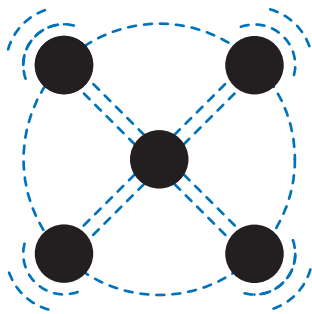


**Coaxial Probe
Signal Propagation**

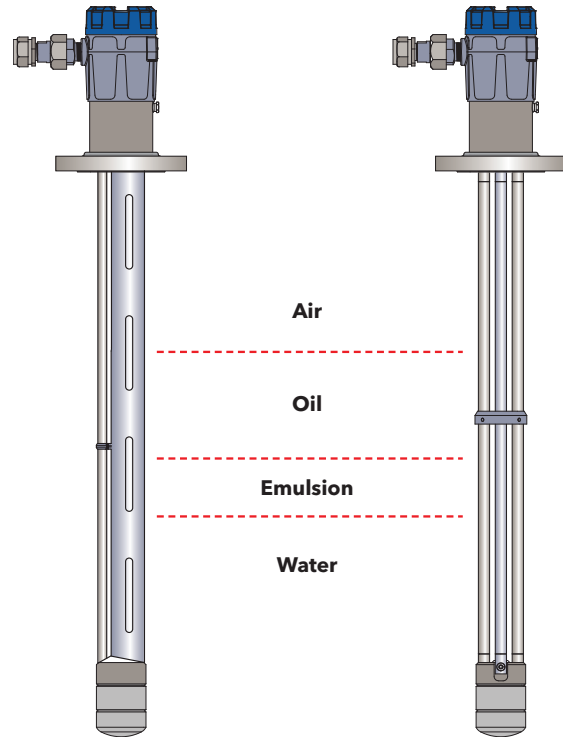
5-CONDUCTOR PENTAROD

With a PFA coated active center rod surrounded by four (4) reference rods, the 5-conductor Pentarod probe is an alternative probe offering for the Genesis. Although this probe still yields excellent performance, its open design makes it less susceptible to buildup and bridging.

Both of the probes offered with the Genesis are unique, and each has specific strengths and weaknesses. While there can be overlap, and both probes can certainly be used in similar applications, it is important to understand their basic differences so that one can choose the probe type that will offer optimal performance.



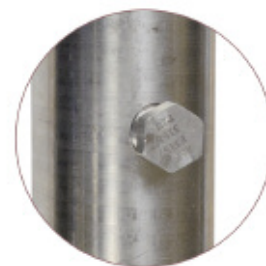
Pentarod Signal Propagation



Coaxial and 5-conductor Probes

OPTIONAL FLUSHING CONNECTION

The maintenance of probes in applications containing buildup or crystallization can be significantly improved by using an optional flushing connection. This flushing connection, which is available with both probe styles, is a metal extension with a port welded above the process connection. The port allows the user to purge the inside of the probes during routine maintenance.



DETECTOR SPECIFICATIONS

FUNCTIONAL/PHYSICAL

System Design	
Measurement Principle	TDR based electronics combined with patented, proprietary software algorithm
Input	
Measured Variable	Level, as determined by time of flight
Span	60 centimeters to 6 meters (2 to 20 feet)
Output	
Type	Four (4) 4–20 mA analog outputs, one (1) with HART; 3.8–20.5 mA useable (per NAMUR NE43)
Resolution	Analog: .003 mA Digital Display: 1 mm
Diagnostic Alarm	Selectable: 3.6 mA, 22 mA (meets requirements of NAMUR NE 43), or HOLD last output
Diagnostic Indication	Meets requirements of NAMUR NE107
Damping	Adjustable 0–30 seconds
User Interface	
Keypad	4-button menu-driven data entry
Display	Graphic liquid crystal display
Digital Communication/Systems	HART Version 7—with Field Communicator, AMS, or FDI DTM (PACT <i>ware</i> ™), EDDL
Menu Languages	LCD: English HART DD: English
Power (at wiring board terminals)	Explosion-proof with Intrinsically Safe probe 24 VDC (±10%), 10 Watt maximum, Um ≤ 30V DC (SELV)
Housing	
Main Electronics	Material / Net/Gross Weight: IP67 aluminum A413 (<0.6% copper) / 2.75 kg (6 lbs.) Stainless steel / 5.7 kg (12.5 lbs.)
Probe Electronics	Material / Net/Gross Weight: Aluminum / 1.4 kg (3 lbs.) Stainless steel / 3.2 kg (7 lbs.)
Cable Entry	¾" NPT or M20 × 1.5

DETECTOR SPECIFICATIONS CONTINUED

FUNCTIONAL/PHYSICAL

Environment

Operating Temperature	-40 to +70 °C (-40 to +160 °F); LCD viewable -20 to +70 °C (-5 to +160 °F)
Storage Temperature	-45 to +85 °C (-50 to +185 °F)
Humidity	0 to 99%, non-condensing
Electromagnetic Compatibility	Meets CE requirement (EN 61326) and NAMUR NE 21 ①
Surge Protection	Meets CE EN 61326 (1000V)
Shock/Vibration	ANSI/ISA-S71.03 Class SA1 (Shock); ANSI/ISA-S71.03 Class VC2 (Vibration)

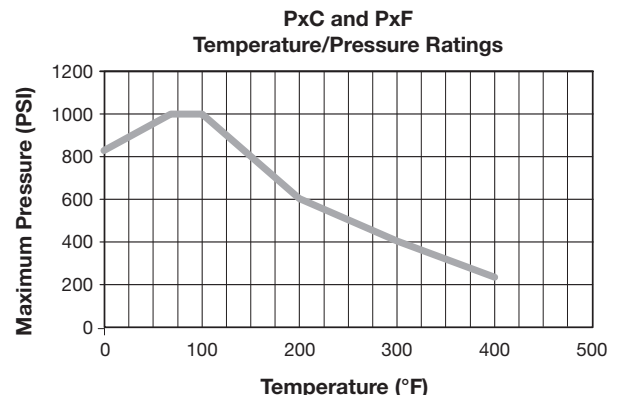
Performance

Reference Conditions	Reflection from liquid with a 3 meter (10 foot) probe at +20 °C (+70 °F)
Linearity	Application dependent
Accuracy	Application dependent
Response Time	Approximately 15 seconds
Initialization Time	Less than 30 seconds

① Pentarod probes must be used in metallic vessel or stillwell to maintain CE noise immunity

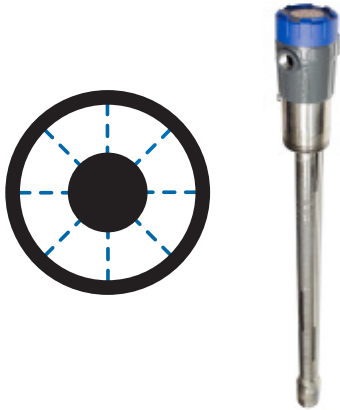
TEMPERATURE/PRESSURE RATING

Temperature °C (°F)	Pressure (316 SS) bar (psi)
-40 (-40)	52 (750)
21 (+70)	70 (1000)
38 (+100)	70 (1000)
93 (+200)	45 (650)
149 (+300)	28 (400)
204 (+400)	19 (270)

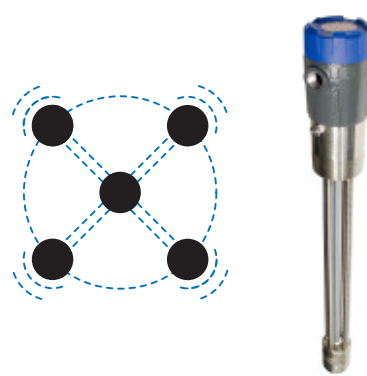


PROBE SELECTION GUIDE – PxC and PxF

ENLARGED COAXIAL PROBE



PENTAROD PROBE



Description ^①	PxC PxF	Enlarged Coaxial PxF: 5-Conductor
Application		Interface
Installation		Direct insertion (preferred) or side-mounted chamber
Materials—Probe		316/316L (1.4401/1.4404) with PFA coated center rod
Process Seal		Teflon® TFE with Viton® o-rings ^②
Spacers	Coaxial Pentarod	CE221 Stainless steel
Probe Outside Diameter		316 SS: 70 mm (2.75")
Process Connection	Threaded Flanged	3" NPT or 3" BSP (G 3") 3" or larger; Various ASME, EN1092
Available Probe Length		60 to 610 cm (24 to 240 inches)
Transition Zones ^③	Top Bottom	200 mm (8 inches) 200 mm (8 inches)
Process Temperature		-40 to +200 °C (-40 to +400 °F)
Max. Process Pressure		70 bar @ +20 °C (1000 psi @ +70 °F)
Dielectric Range		1.4 to 100
Vacuum Service ^④		Negative pressure, but not hermetic seal
Maximum Viscosity	PxC PxF	PxC: 2,000cP (mPa.s) PxF: 10,000cP (mPa.s)

^① 2nd digit E=English, M=Metric

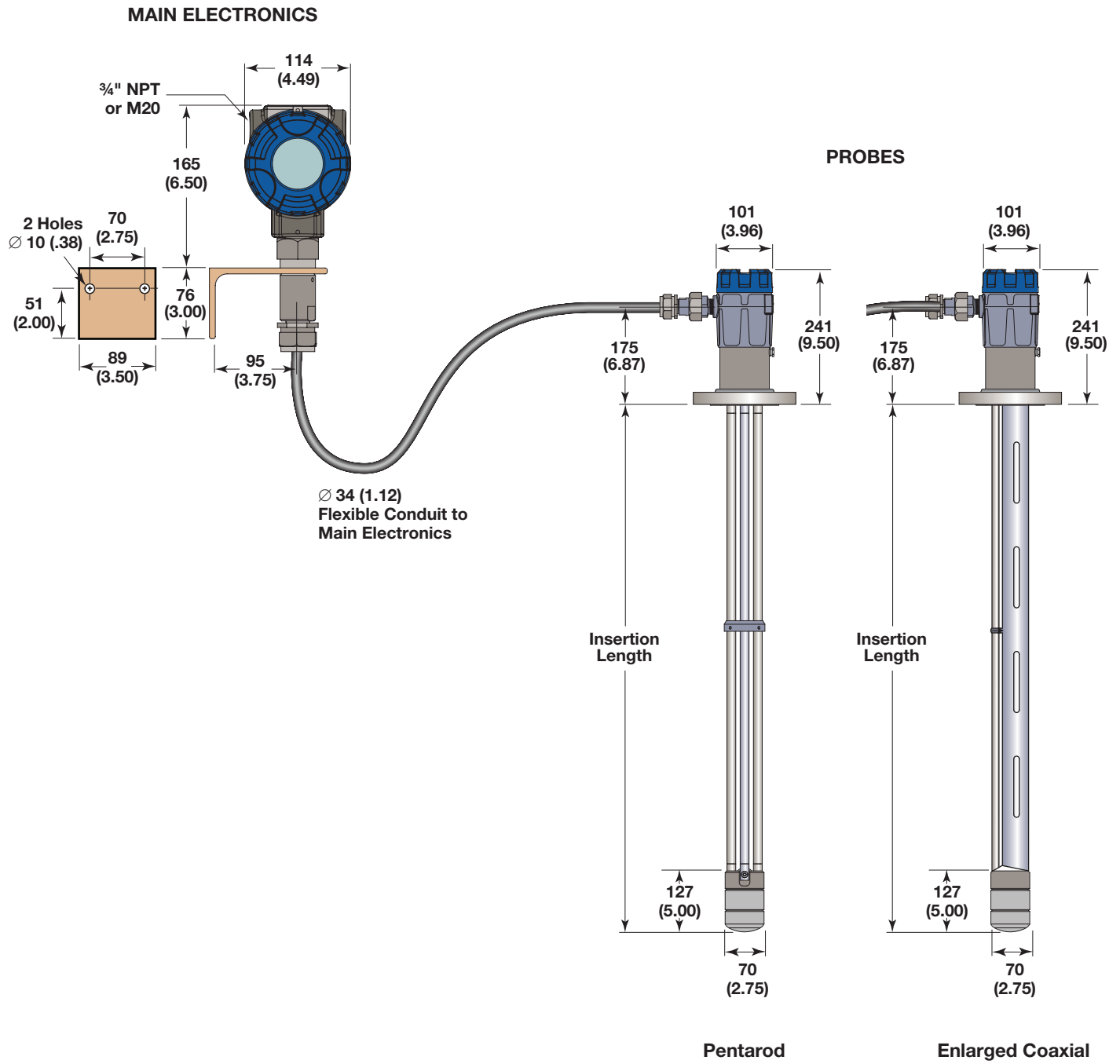
^② Other o-ring materials available upon request.

^③ Top Transition Zone: The detector may still operate but level readings may become non-linear.
Bottom Transition Zone: Detector will not measure levels in this area.

^④ Genesis probes containing o-rings can be used for vacuum (negative pressure) service but are not hermetically sealed.

DIMENSIONS

millimeters (inches)




AGENCY APPROVALS




These units are in compliance with the EMC-directive 2014/30/EU, the PED-directive 2014/68/EU and the ATEX directive 2014/34/EU.

AVERTISSEMENT! Danger d'explosion éventuel. Ne brancher ou débrancher des équipements que si l'alimentation électrique a été coupée ou si la zone est réputée non dangereuse.


DETECTOR EDx-210x-xxx





MAGNETROL®
705 ENTERPRISE ST AURORA, 60504 IL USA
GENESIS®




AMETEK®









MANUF YEAR:
TYPE 4X, IP67
REFER TO INSTRUCTION MANUAL

MODEL NO:
SERIAL NO:
INPUT: $U_m = 30.0V_{dc}$
OUTPUT: 4–20mA
THREADED ENTRY:
MAX PRESS:
 $T_a = -40^{\circ}C$ TO $70^{\circ}C$

SEAL ALL CONDUITS WITHIN 18 INCHES
SCELLEZ TOUS LES CONDUITS À MOINS DE 18 POUCES

FM21US0011X / FM21CA0007X
IS CONNECTIONS TO CL I, II, III, DIV 1, GP C,D,E,F,G T4
CL I, DIV 1, GP B,C,D T4
CL II, III, DIV 1 GP E,F,G T4
CL I, ZONE 1 AEx db [ia IIB Ga] IIB + H2 T4 Gb
Ex db [ia IIB Ga] IIB + H2 T4 Gb


FM21ATEX0004X / FM21UKEX0073X
II 2 (1) G Ex db [ia IIB Ga] IIB + H2 T4 Gb
IECEX FMG 21.0004X
Ex db [ia IIB Ga] IIB + H2 T4 Gb

Genesis MIHQ


Explosion Proof - Flameproof with I.S. outputs

5th Digit: 1 = HART


8th Digit: 3 = Explosion/Flameproof with I.S. outputs





MAGNETROL®
705 ENTERPRISE ST AURORA, 60504 IL USA
GENESIS®




AMETEK®









MANUF YEAR:
MADE BY: 9240 ZELE, BELGIUM
TYPE 4X, IP67
REFER TO INSTRUCTION MANUAL

MODEL NO:
SERIAL NO:
INPUT: $U_m = 30.0V_{dc}$
OUTPUT: 4–20mA
THREADED ENTRY:
MAX PRESS:
 $T_a = -40^{\circ}C$ TO $70^{\circ}C$

SEAL ALL CONDUITS WITHIN 18 INCHES
SCELLEZ TOUS LES CONDUITS À MOINS DE 18 POUCES

XP-IS
FM21US0011X / FM21CA0007X
IS CONNECTIONS TO CL I, II, III, DIV 1, GP C,D,E,F,G T4
CL I, DIV 1, GP B,C,D T4
CL II, III, DIV 1 GP E,F,G T4
CL I, ZONE 1 AEx db [ia IIB Ga] IIB + H2 T4 Gb
Ex db [ia IIB Ga] IIB + H2 T4 Gb

FM21ATEX0004X / FM21UKEX0073X
II 2 (1) G Ex db [ia IIB Ga] IIB + H2 T4 Gb
IECEX FMG 21.0004
Ex db [ia IIB Ga] IIB + H2 T4 Gb







Genesis MINV

Explosion Proof - Flameproof with I.S. outputs

5th Digit: 1 = HART

8th Digit: 3 = Explosion/Flameproof with I.S. outputs

DETECTOR EDx-210x-xxx







 MAGNETROL® <small>705 ENTERPRISE ST AURORA, 60504 IL USA</small> GENESIS®	 AMETEK®	   	<small>MANUF YEAR: TYPE 4X, IP67 REFER TO INSTRUCTION MANUAL</small>		
<p>MODEL NO: SERIAL NO: INPUT: $U_m = 30V_{dc}$ OUTPUT: 4–20mA THREADED ENTRY: MAX PRESS: AEx/Ex ec $T_a = -15^{\circ}C$ to $+70^{\circ}C$ $T_a = -40^{\circ}C$ to $+70^{\circ}C$</p>					
<table border="0" style="width: 100%; font-size: small;"> <tr> <td style="width: 50%;"> NI FM21US0011X / FM21CA0007X IS CONNECTIONS TO CL I, II, III, DIV 1, GP C,D,E,F,G T4 CL I, DIV 2, GP A,B,C,D T4 CL II, III DIV 1, GP E,F,G T4 CL I, ZONE 2 AEx ec [ia IIB Ga] IIC T4 Gc Ex ec [ia IIB Ga] IIC T4 Gc </td> <td style="width: 50%; vertical-align: top;"> FM21ATEX0004X / FM21UKEX0073X II 3 (1) G Ex ec [ia IIB Ga] IIC T4 Gc IECEx FMG 21.0004X Ex ec [ia IIB Ga] IIC T4 Gc </td> </tr> </table>				NI FM21US0011X / FM21CA0007X IS CONNECTIONS TO CL I, II, III, DIV 1, GP C,D,E,F,G T4 CL I, DIV 2, GP A,B,C,D T4 CL II, III DIV 1, GP E,F,G T4 CL I, ZONE 2 AEx ec [ia IIB Ga] IIC T4 Gc Ex ec [ia IIB Ga] IIC T4 Gc	FM21ATEX0004X / FM21UKEX0073X II 3 (1) G Ex ec [ia IIB Ga] IIC T4 Gc IECEx FMG 21.0004X Ex ec [ia IIB Ga] IIC T4 Gc
NI FM21US0011X / FM21CA0007X IS CONNECTIONS TO CL I, II, III, DIV 1, GP C,D,E,F,G T4 CL I, DIV 2, GP A,B,C,D T4 CL II, III DIV 1, GP E,F,G T4 CL I, ZONE 2 AEx ec [ia IIB Ga] IIC T4 Gc Ex ec [ia IIB Ga] IIC T4 Gc	FM21ATEX0004X / FM21UKEX0073X II 3 (1) G Ex ec [ia IIB Ga] IIC T4 Gc IECEx FMG 21.0004X Ex ec [ia IIB Ga] IIC T4 Gc				

Genesis MIHQ

Non Incendive - Increased Safetywith I.S. outputs

5th Digit: 1 = HART

8th Digit C = Non Incendive, Increased Safety with I.S. outputs

 MAGNETROL® <small>705 ENTERPRISE ST AURORA, 60504 IL USA</small> GENESIS®	 AMETEK®	   	<small>MANUF YEAR: MADE BY: 9240 ZELE, BELGIUM TYPE 4X, IP67 REFER TO INSTRUCTION MANUAL</small>		
<p>MODEL NO: SERIAL NO: INPUT: $U_m = 30V_{dc}$ OUTPUT: 4–20mA THREADED ENTRY: MAX PRESS: AEx/Ex ec $T_a = -15^{\circ}C$ to $+70^{\circ}C$ $T_a = -40^{\circ}C$ to $+70^{\circ}C$</p>					
<table border="0" style="width: 100%; font-size: small;"> <tr> <td style="width: 50%;"> NI FM21US0011X / FM21CA0007X IS CONNECTIONS TO CL I, II, III, DIV 1, GP C,D,E,F,G T4 CL I, DIV 2, GP A,B,C,D T4 CL II, III DIV 1, GP E,F,G T4 CL I, ZONE 2 AEx ec [ia IIB Ga] IIC T4 Gc Ex ec [ia IIB Ga] IIC T4 Gc </td> <td style="width: 50%; vertical-align: top;"> FM21ATEX0004X / FM21UKEX0073X II 3 (1) G Ex ec [ia IIB Ga] IIC T4 Gc IECEx FMG 21.0004X Ex ec [ia IIB Ga] IIC T4 Gc </td> </tr> </table>				NI FM21US0011X / FM21CA0007X IS CONNECTIONS TO CL I, II, III, DIV 1, GP C,D,E,F,G T4 CL I, DIV 2, GP A,B,C,D T4 CL II, III DIV 1, GP E,F,G T4 CL I, ZONE 2 AEx ec [ia IIB Ga] IIC T4 Gc Ex ec [ia IIB Ga] IIC T4 Gc	FM21ATEX0004X / FM21UKEX0073X II 3 (1) G Ex ec [ia IIB Ga] IIC T4 Gc IECEx FMG 21.0004X Ex ec [ia IIB Ga] IIC T4 Gc
NI FM21US0011X / FM21CA0007X IS CONNECTIONS TO CL I, II, III, DIV 1, GP C,D,E,F,G T4 CL I, DIV 2, GP A,B,C,D T4 CL II, III DIV 1, GP E,F,G T4 CL I, ZONE 2 AEx ec [ia IIB Ga] IIC T4 Gc Ex ec [ia IIB Ga] IIC T4 Gc	FM21ATEX0004X / FM21UKEX0073X II 3 (1) G Ex ec [ia IIB Ga] IIC T4 Gc IECEx FMG 21.0004X Ex ec [ia IIB Ga] IIC T4 Gc				


Genesis MINV

Non Incendive - Increased Safetywith I.S. outputs





5th Digit: 1 = HART

8th Digit C = Non Incendive, Increased Safety with I.S. outputs

PROBE Pxx-xxx0-A0x-xx-xxx



MAGNETROL®
705 ENTERPRISE ST AURORA, 60504 IL USA
GENESIS®

AMETEK®

MANUF YEAR:
TYPE 4X, IP67
REFER TO INSTRUCTION MANUAL


MODEL NO:
SERIAL NO:
THREADED ENTRY: 3/4 NPT
MAX PRESS:
T_a = -40°C TO 70°C

IS
FM21US0011X / FM21CA0007X
CL I, II, III, DIV 1 GP C,D,E,F,G T6...T1
CL I, ZONE 0 AEx ia IIB T6...T1 Ga
Ex ia IIB T6...T1 Ga





FM21ATEX0004X / FM21UKEX0073X
II 1 G Ex ia IIB T6...T1 Ga

IECEX FMG 21.0004X
Ex ia IIB T6...T1 Ga

Genesis MIHQ
Intrinsically Safe



MAGNETROL®
705 ENTERPRISE ST AURORA, 60504 IL USA
GENESIS®

AMETEK®

MANUF YEAR:
MADE BY: 9240 ZELE, BELGIUM
TYPE 4X, IP67
REFER TO INSTRUCTION MANUAL

MODEL NO:
SERIAL NO:
THREADED ENTRY: 3/4 NPT
MAX PRESS:
T_a = -40°C TO 70°C

IS
FM21US0011X / FM21CA0007X
CL I, II, III, DIV 1 GP C,D,E,F,G T6...T1
CL I, ZONE 0 AEx ia IIB T6...T1 Ga
Ex ia IIB T6...T1 Ga

FM21ATEX0004X / FM21UKEX0073X
II 1 G Ex ia IIB T6...T1 Ga

IECEX FMG 21.0004X
Ex ia IIB T6...T1 Ga

Genesis MINV
Intrinsically Safe

AGENCY APPROVALS

Specific Conditions of Use

Detector:

1. The flamepaths of the equipment are not intended to be repaired. Consult the manufacturer if repair of the flamepath joints is necessary.
2. Refer to the manufacturer's instructions to reduce the potential of an electrostatic charging hazard on the equipment enclosure.
3. The detector shall be connected to a safety extra low-voltage circuit (SELV) with $U_m \leq 30V$

Probe:

1. Refer to the manufacturer's instructions to reduce the potential of an electrostatic charging hazard on the equipment enclosure.

Temperature Code

For Probe: T6...T1 temperature code are defined by the following table:

Process Temperature (PT)	Temperature Code-TCG (GAS)
$\leq 75 \text{ }^\circ\text{C}$	T6
75 to $90 \text{ }^\circ\text{C}$	T5
90 to $120 \text{ }^\circ\text{C}$	T4
125 to $185 \text{ }^\circ\text{C}$	T3
185 to $285 \text{ }^\circ\text{C}$	T2
285 to $435 \text{ }^\circ\text{C}$	T1

O-RING (SEAL) SELECTION CHART

O-RING/SEAL SPECIFICATIONS

Code	O-Ring/Seal Material	Max. Process Temperature	Min. Process Temperature	Max. Process Pressure	Not Recommended For Applications	Recommended for Applications
0	Viton® VX065	400 °F @ 230 psi (200 °C @ 16 bar)	-40 °F (-40 °C)	1000 psi 70 °F (70 bar @ 20 °C)	Ketones (MEK, acetone), skydrol fluids, amines, anhydrous ammonia, low molecular weight esters and ethers, hot hydrofluoric or chlorosulfuric acids, sour HCs	General purpose, ethylene
2	Kalrez® 4079	400 °F @ 232 psi (200 °C @ 16 bar)	-40 °F (-40 °C)	1000 psi 70 °F (70 bar @ 20 °C)	Hot water/steam, hot aliphatic amines, ethylene oxide, propylene oxide	Inorganic and organic acids (including hydro fluids and nitric), aldehydes, ethylene, organic oils, glycols, silicone oils, vinegar, sour HCs
8	Simriz SZ485 (formerly Aegis PF128)	400 °F @ 232 psi (200 °C @ 16 bar)	20 °F (-7 °C)	1000 psi 70 °F (70 bar @ 20 °C)	Black liquor, freon 43, freon 75, galden, KEL-F liquid, molten potassium, molten sodium	Inorganic and organic acids (including hydro fluids and nitric), aldehydes, ethylene, organic oils, glycols, silicone oils, vinegar, sour HCs, steam, amines, ethylene oxide, propylene oxide, NACE applications
A	Kalrez® 6375	400 °F @ 232 psi (200 °C @ 16 bar)	-40 °F (-40 °C)	1000 psi 70 °F (70 bar @ 20 °C)	Hot water/steam, hot aliphatic amines	Inorganic and organic acids (including hydro fluids and nitric), aldehydes, ethylene, organic oils, glycols, silicone oils, vinegar, sour HCs. ethylene oxide, propylene oxide

MODEL NUMBER

DETECTOR

While both versions of Genesis are robust designs capable of performing similar functions, the Model ED1 is the full-featured detector that comes standard with all (4) analog outputs; an enhanced DTM for dynamic viewing of all levels; and was the basis for developing the sophisticated algorithms that allow us to measure the most difficult levels found in the process industries.

The Model ED1 is particularly suited for the downstream Oil & Gas market (Petroleum Refining) where it outper-

forms traditional technologies while going head-to-head with nucleonic devices (e.g., Profilers) at a more competitive total cost of ownership.

The Model ED2 benefits from the heavy algorithms developed for the ED1 but allows two, three, or four analog output configurations that are easier to price in the upstream Oil & Gas market (E&P).

1 2 3 | BASIC MODEL NUMBER

E D 1	Genesis High Performance Multiphase Detector
E D 2	Genesis Standard Multiphase Detector

4 | POWER

2	24 VDC (SELV)
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5 | SIGNAL OUTPUT

1	4-20 mA with HART
---	-------------------

6 | OPTIONS

0	None (Model ED1 only – Four (4) 4-20mA outputs included as standard)
2	Two (2) 4-20mA outputs (Model ED2 only)
3	Three (3) 4-20 mA outputs (Model ED2 only)
4	Four (4) 4-20 mA outputs (Model ED2 only)

7 | ACCESSORIES/MOUNTING

A	3 meter (10 foot) remote
B	6 meter (20 foot) remote
C	15 meter (50 foot) remote
D	30 meter (100 foot) remote

8 | CLASSIFICATION

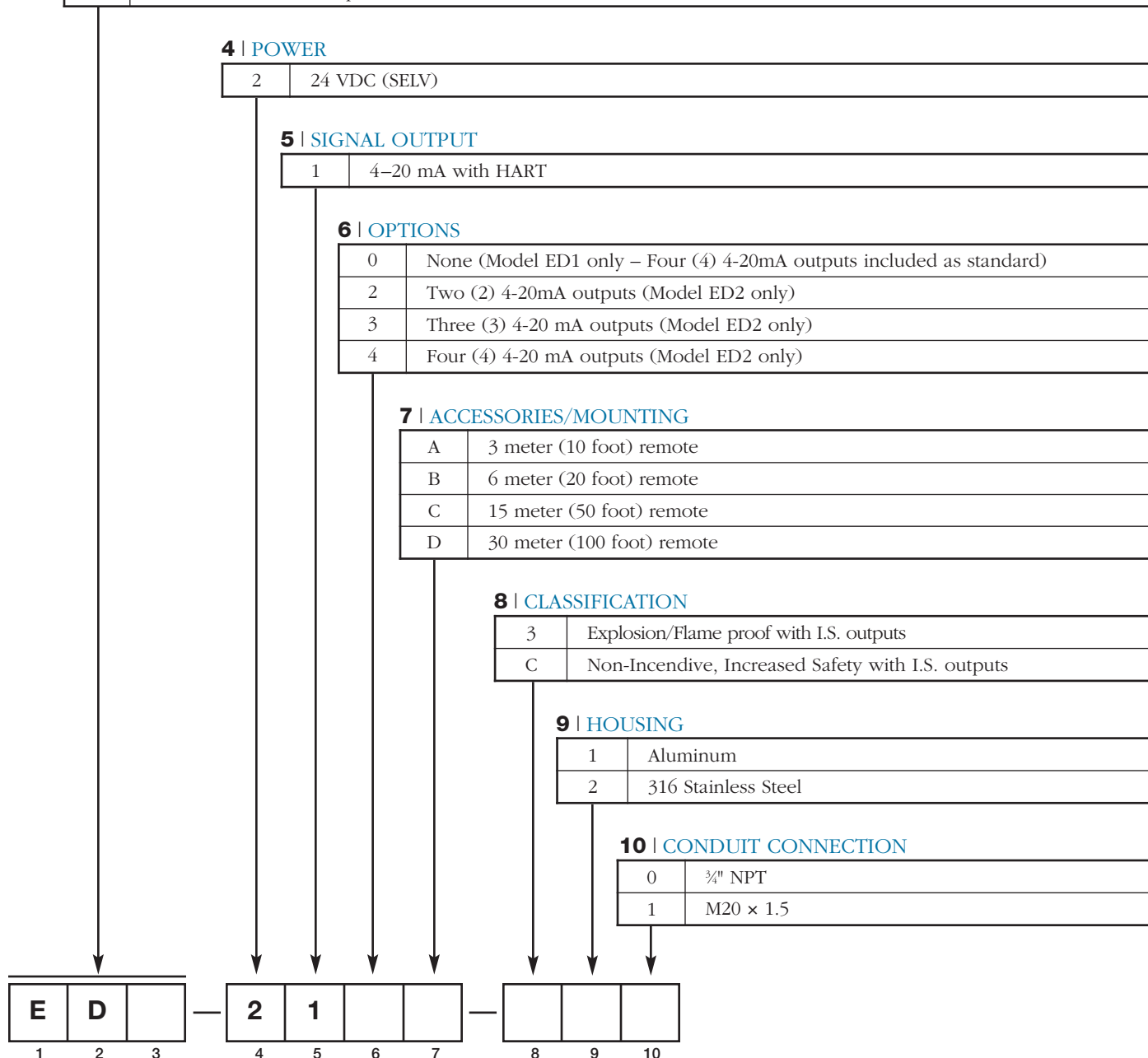
3	Explosion/Flame proof with I.S. outputs
C	Non-Incendive, Increased Safety with I.S. outputs

9 | HOUSING

1	Aluminum
2	316 Stainless Steel

10 | CONDUIT CONNECTION

0	¾" NPT
1	M20 × 1.5



MODEL NUMBER

PROBE

1 | TECHNOLOGY

P	Genesis TDR Probe
---	-------------------

2 | MEASUREMENT SYSTEM

E	English (inches)
M	Metric (centimeters)

3 | CONFIGURATION

C	Enlarged Coaxial (+200 °C/+400 °F)
F	Pentarod (+200 °C/+400 °F)

4 5 | PROCESS CONNECTION – SIZE/TYPE (consult factory for other process connections)

Threaded

5 1	3"	NPT
5 2	3"	BSP (G 3)

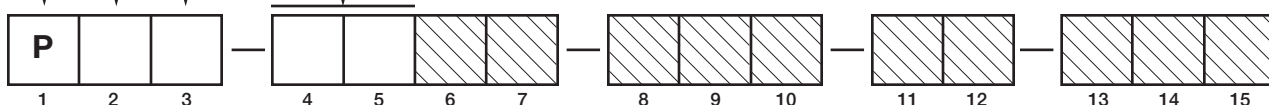
ASME Flanges

5 3	3"	150# ASME RF	6 3	4"	150# ASME RF	7 3	6"	150# ASME RF
5 4	3"	300# ASME RF	6 4	4"	300# ASME RF	7 4	6"	300# ASME RF
5 5	3"	600# ASME RF	6 5	4"	600# ASME RF	7 5	6"	600# ASME RF
5 6	3"	900# ASME RF	6 6	4"	900# ASME RF	7 K	6"	600# ASME RTJ
5 K	3"	600# ASME RTJ	6 K	4"	600# ASME RTJ			
5 L	3"	900# ASME RTJ	6 L	4"	900# ASME RTJ			

EN Flanges

E A	DN 80, PN 16	EN 1092-1 TYPE A	F E	DN 100, PN 100	EN 1092-1 TYPE B2
E B	DN 80, PN 25/40	EN 1092-1 TYPE A	F F	DN 100, PN 160	EN 1092-1 TYPE B2
E D	DN 80, PN 63	EN 1092-1 TYPE B2	F W	DN 100, PN 16	EN 1092-1 TYPE B1
E E	DN 80, PN 100	EN 1092-1 TYPE B2	F Z	DN 100, PN 25/40	EN 1092-1 TYPE B1
E F	DN 80, PN 160	EN 1092-1 TYPE B2	G A	DN 150, PN 16	EN 1092-1 TYPE A
E W	DN 80, PN 16	EN 1092-1 TYPE B1	G B	DN 150, PN 25/40	EN 1092-1 TYPE A
E Z	DN 80, PN 25/40	EN 1092-1 TYPE B1	G D	DN 150, PN 63	EN 1092-1 TYPE B2
F A	DN 100, PN 16	EN 1092-1 TYPE A	G E	DN 150, PN 100	EN 1092-1 TYPE B2
F B	DN 100, PN 25/40	EN 1092-1 TYPE A	G W	DN 150, PN 16	EN 1092-1 TYPE B1
F D	DN 100, PN 63	EN 1092-1 TYPE B2	G Z	DN 150, PN 25/40	EN 1092-1 TYPE B1

Confirm mounting conditions/nozzle diameter to ensure sufficient clearance.



MODEL NUMBER CONTINUED

PROBE

6 | CONSTRUCTION CODES

0	Industrial
K	ASME B31.1
L	ASME B31.3
M	ASME B31.3 & NACE MR0175/MR0103
N	NACE MR0175/MR0103

7 | FLANGE OPTIONS

0	None
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8 | MATERIAL OF CONSTRUCTION - FLANGE/NUT/ROD

A	316 SS/316L SS (PFA coated center rod)
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9 | OPTIONS

0	None
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10 | O-RING MATERIALS/SEAL OPTIONS

0	Viton® VX065
2	Kalrez® 4079
8	Simriz SZ485 (formerly Aegis PF128)
A	Kalrez 6375

11 | OPTIONS

0	None
1	Flushing Port

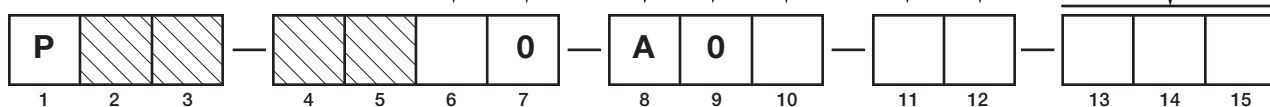
12 | REMOTE HOUSING MATERIAL

1	Aluminum
2	316 Stainless Steel

13 14 15 | INSERTION LENGTH See page 8

X X X	inches (24 – 240) cm (60 – 610)
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unit of measure determined
by 2nd digit of model number



QUALITY



The quality assurance system in place at Magnetrol guarantees the highest level of quality throughout the company. Magnetrol is committed to providing full customer satisfaction both in quality products and quality service.

The Magnetrol quality assurance system is registered to ISO 9001 affirming its commitment to known international quality standards providing the strongest assurance of product/service quality available.

WARRANTY



All Magnetrol electronic level and flow controls are warranted free of defects in materials or workmanship for eighteen months from the date of original factory shipment.

If returned within the warranty period; and, upon factory inspection of the control, the cause of the claim is determined to be covered under the warranty; then, Magnetrol will repair or replace the control at no cost to the purchaser (or owner) other than transportation.

Magnetrol shall not be liable for misapplication, labor claims, direct or consequential damage or expense arising from the installation or use of equipment. There are no other warranties expressed or implied, except special written warranties covering some Magnetrol products.

For additional information, see Instruction Manual 63-601.

Genesis may be protected by one or more of the following U.S. Patent Nos. US9,546,895; US2,886,391; US9,360,361; May depend on model. Other patents pending.



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Performance specifications are effective with date of issue and are subject to change without notice.

BULLETIN: 63-101.0
EFFECTIVE: May 2022