



# Digital ES II Modulelevel® w/HART® Communication and Analog EZ Modulelevel Electronic Liquid Level Transmitters

## DESCRIPTION

The Digital ES II and Analog EZ Modulelevels are advanced, intrinsically safe two-wire or four-wire instruments utilizing simple buoyancy principle to detect and convert liquid level changes into a stable 4–20 mA output signal. The linkage between the level sensing element and output electronics provides a simple mechanical design and construction. The vertical in-line design of the transmitter results in low instrument weight and simplified installation. The instrument comes in a variety of configurations and pressure ratings for varied applications.

The Digital ES II Modulelevel has microprocessor-based electronics with HART compatible output, in addition to the standard 4–20 mA output, while the Analog EZ Modulelevel provides a simple 4–20 mA output signal.

## TECHNOLOGY

Changing buoyancy forces caused by liquid level change acting upon the spring supported displacer cause vertical motion of a core within a linear variable differential transformer.

As the core position changes with liquid level, voltages are induced across the secondary windings of the LVDT. These signals are processed in the electronic circuitry and used to control the current in the 4–20 mA current loop. The enclosing tube acts as a static isolation barrier between the LVDT and the process media.



## APPLICATIONS

- Feedwater heaters
- Scrubbers
- Receivers
- Separators
- Interface Level
- Knock-out drums
- Flash tanks
- Condensate drip pots
- Boilers

# FEATURES

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## DIGITAL ES AND ANALOG EZ MODULE LEVEL

- Two-wire, loop-powered, intrinsically safe
- Cast iron, NEMA 4X, Cl I Div 1 Groups B, C, D housing
- Field selectable direct or reverse acting output
- Field wiring in isolated junction box
- Head rotatable through 360°
- Range spring suppresses effects of turbulence to produce stable output signal.
- Special conduit seals prohibit moisture and condensation seepage into electronics enclosure.
- Specific gravity as low as 0.23
- Level ranges from 14 to 120 inches (356 to 3048 mm)
- Non-interacting zero and span
- Interface option available
- 4–20 mA output signal
- Analog meter available
- Spring protector standard
- Calibration stand available for bench calibration
- IS, XP and Non-incendive approvals by FM, CSA and ATEX
- Process temperatures to +600° F (+315° C) for non-steam applications
- Flanged top mounting or external cage with side/side or side/bottom connections
- Emission and immunity compliance to EN50081-2 and EN50082-2
- Special options, materials of construction and custom engineered features available (consult factory)

## DIGITAL ES MODULE LEVEL

- HART network compatible
- Remote calibration without level movement via HART compatible handheld unit
- Standard output range from 3.8 to 20.5 mA
- Specific gravity adjustment without stopping process via HART compatible handheld unit
- Push-button program local calibration
- Continuous self-test with 22 mA or 3.6 mA fault indication fully compliance with NAMUR NE 43
- HART indication of approaching fault
- Signal damping adjustment without stopping process via HART compatible handheld unit
- Recalibration without level movement
- Digital LCD meter option with plug connectors
- 15 unit multi-drop capability
- Signal sampling 15 times per second
- 12 VDC or less turn on voltage
- Maximum loop resistance of 545 ohms at 24 VDC



## HANDHELD OPTION

Digital ES II models are compatible with Rosemount, Inc. model 275 D9E (English version) Handheld Communicator. Programming must be added to the HART program for:

- Dry set point
- Set specific gravity
- 20 mA by percentage
- Damping

Contact authorized HART distributors for ES II program addition.

## PHYSICAL SPECIFICATIONS

Measured Variable:	Liquid level or liquid interface level
Physical Range:	Up to 120" (300 cm) based on displacer length
Chamber Materials:	Carbon steel, 316/316L stainless steel
Wetted Parts:	900# or greater construction, 304/304L, 316/316L stainless steel and inconel 600# or less construction, 316/316L stainless steel and inconel
Process Connection:	Tank top: 3", 4", 6" ANSI flange Chambered: 1½", 2" NPT, socketweld or ANSI flanges
Process Temp Range <sup>①</sup> :	Steam applications: -20° to +500° F (-29° to +260° C) Non-steam applications: -20° to +600° F (-29° to +315° C)
Maximum Process Pressure:	5100 psig @ +100° F (294 bar @ +38° C)
Housing Material:	Polymer coated cast iron
Cable Entry:	1" NPT

① Maximum temperatures given are based on ambient temperatures up to +120° F (+49° C). Higher ambient temperatures require reduced process temperatures. Minimum temperatures given are for carbon steel construction materials. Complete stainless steel construction may be used for lower process temperatures.

## DIGITAL ES II SPECIFICATIONS

Signal Output:	Analog 4–20 mA direct or reverse acting with HART digital signal Analog 3.8–20.5 useable (meets NAMUR NE 43) Analog or Digital 0–100%
Loop Resistance:	545 ohms @ 24 VDC
Damping:	Adjustable 0–60 seconds
Fault:	3.6 or 22 mA, selectable
User Interface:	Three button keypad with three LEDs and/or HART communicator
Indication:	3 LEDs on PCB for calibration and functional checks Analog or digital meters (optional)
Power (at terminals):	12 VDC to 36 VDC
Sampling Rate:	Transmitter 15/second Digital Meter 1.33/second
Menu Language:	English

## ANALOG EZ SPECIFICATIONS


Signal Output:	Analog 4–20 mA direct or reverse acting
	Analog 0–100%
Loop Resistance:	480 ohms @ 24 VDC
Alarm:	22 mA fault
User Interface:	Zero and span potentiometers
Indication:	Analog meter (optional)
Power (at terminals):	12 to 36 VDC
	120 VAC, 50/60 Hz
	240 VAC, 50/60 Hz

## ES II AND EZ PERFORMANCE

Linearity (independent):	LVDT: $\pm 0.25\%$ of full span <sup>①</sup>
	Mechanical/electrical: $\pm 0.25\%$ of full span
Repeatability:	$\pm 0.20\%$ of full span <sup>①</sup>
Resolution:	0.05 % of range $\pm 1$ digit
Ambient Temp. Effect:	Maximum zero shift is 0.031 % of range/°F
Operating Temp. Range:	-40° to +160° F (-40° to +70° C)
Digital Meter Temp. Range:	-4° to +160° F (-20° to +70° C)
Storage Temp. Range:	-40° to +185° F (-40° to +85° C)
Electromagnetic Compatibility:	Meets CE Requirements (EN 50081-2, EN 50082-2)



<sup>①</sup> These performance characteristics apply to units measuring liquid level. Interface measurement units may not exhibit the same performance.

## AGENCY APPROVALS

AGENCY	MODEL APPROVED	APPROVAL CLASSES
<b>FM</b>  	<b>XEXX-XXXX</b> with transmitter codes: <b>EZA</b> , B, C, E, F, G, L, N <b>ESA</b> , E, F, G, 7, 9 <b>GZH</b> , K, Q, R, S, T, U, V, 2, 3, 5, 6 <b>GSH</b> , K, Q, T, 4, 7 <b>RZW</b> , X <b>RSW</b> , X, 4	<b>Explosion Proof</b> Class I, Div 1; Groups B, C, D Class II, Div 1; Groups E, F, G Class III, NEMA 4X
	<b>XEXX-XXXX</b> with transmitter codes: <b>RZQ</b> , T <b>RSQ</b> , T, Z	<b>Explosion Proof w/ Intrinsically Safe Connections</b> Class I, II, III, Div 1, Groups B, C, D, E, F, G Nema 4X Entity
	<b>EXX-XXXX</b> with transmitter codes: <b>EZD</b> , H, I, K <b>ESD</b> , H, I, J, K, 8, 9	<b>Intrinsically Safe</b> Class I, Div 1; Groups A, B, C, D Class II, Div 1; Groups E, F, G Class III, NEMA 4X Entity

Continued on next page

# AGENCY APPROVALS

AGENCY	MODEL APPROVED	APPROVAL CLASSES
FM	<b>EXX-XXXX</b> with transmitter codes: <b>EZA</b> , G <b>ESA</b> , E, F, G, 7, 9 <b>GZH</b> , K, Q, T ② <b>GSH</b> , K, Q, T, 4, 7 ② <b>RZW</b> , X <b>RSW</b> , X, 4	<b>Non-Incendive</b> suitable for: Class I, Div 2, Groups A, B, C, D Class II, Div 2, Groups F, G Class III, Div. 2, NEMA 4X
CSA 	<b>XE5X-XXXX</b> with transmitter codes: <b>EZA</b> , B, C, E, F, G, L, N <b>ESA</b> , E, F, G, 7, 9 <b>GZH</b> , K, Q, R, S, T, U, V, 2, 3, 5, 6 <b>GSH</b> , K, Q, T, 4, 7 <b>RZW</b> , X <b>RSW</b> , X, 4 <b>E5X-XXXX</b> with transmitter codes: <b>EZD</b> , H, I, K <b>ESD</b> , H, I, J, K, 8 <b>GZH</b> , K, Q, T ③ <b>GSH</b> , K, Q, T, 4, 7 ③ <b>RZQ</b> , T <b>RSQ</b> , T, Z <b>E5X-XXXX</b> with transmitter codes: <b>EZD</b> , H, I, K <b>ESD</b> , H, I, J, K, 8 <b>GZH</b> , K, Q, T ③ <b>GSH</b> , K, Q, T, 4, 7 ③ <b>RZQ</b> , T <b>RSQ</b> , T, Z	<b>Explosion Proof</b> Class I, Div 1, Groups B, C, D Class II, Div 1, Groups E, F, G Class III, Type 4X  <b>Intrinsically Safe</b> Class I, Div 1, Groups A, B, C, D Class II, Div 1, Groups E, F, G Class III, Type 4X Entity  <b>Non-Incendive</b> suitable for: Class I, Div 2, Groups A, B, C, D Class II, Div 2, Groups E, F, G Class III, Type 4X
ATEX 	<b>XEXX-XXXX, EXX-XXXX</b> with transmitter codes <b>EZA</b> , E, F, G <b>ESA</b> , E, F, G, 7, 9 <b>RZW</b> , X <b>RSW</b> , X, 4 <b>EXX-XXXX</b> with transmitter codes <b>ESD</b> , I, H, K <b>RSQ</b> , T <b>EXX-XXXX</b> with transmitter codes <b>ESJ</b> , 8 <b>RSZ</b>	<b>Explosion Proof</b> ④ ATEX Ex II 1/2 G EEx d IIC T6 IP66  <b>Intrinsically Safe</b> ATEX Ex II 1 G EEx ia IIC T6 IP66  <b>Intrinsically Safe</b> ATEX Ex II 1 G EEx ia IIC T5 IP66



These units have been tested to EN 50081-2 and EN 50082-2 and are in compliance with the EMC Directive 89/336/EEC.

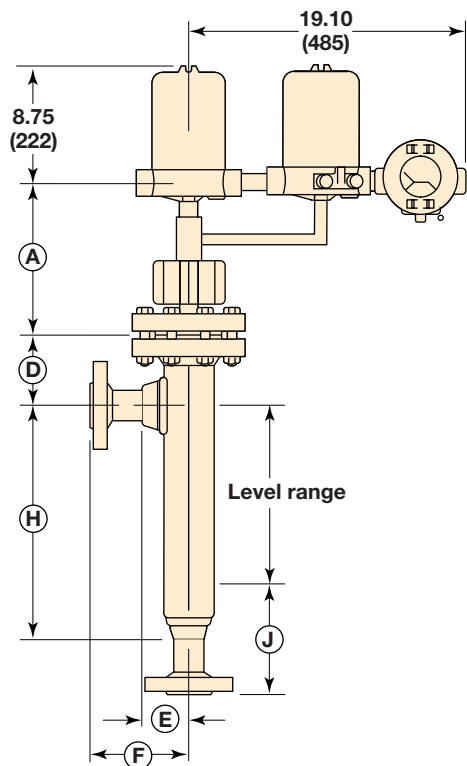
② Field wiring must be installed in conduit.

③ If IS or NI CSA name plate is required, this must be specified at time of order placement.

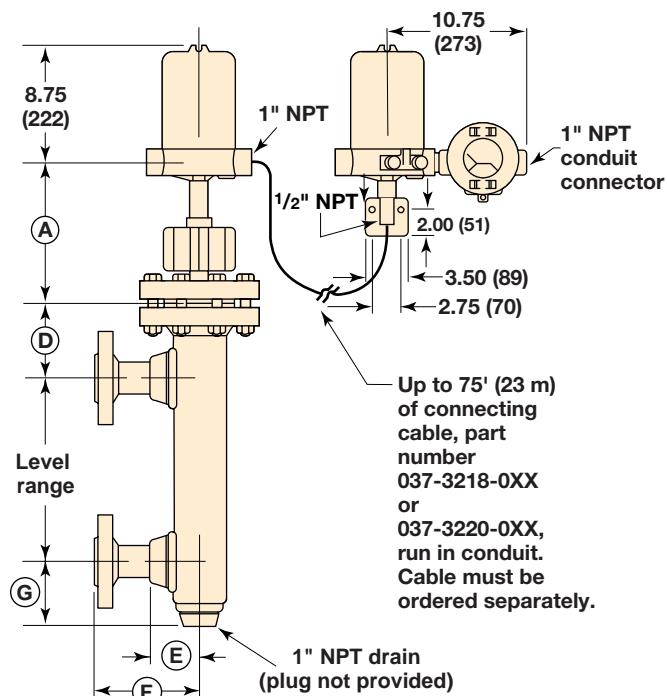
④ ATEX EP approval available on standard 900#, 1500#, and 2500# models. 150#, 300#, and #600 models require modification for ATEX EP approval and must be "X'd" for a heavy wall e-tube.

# DIMENSIONAL SPECIFICATIONS

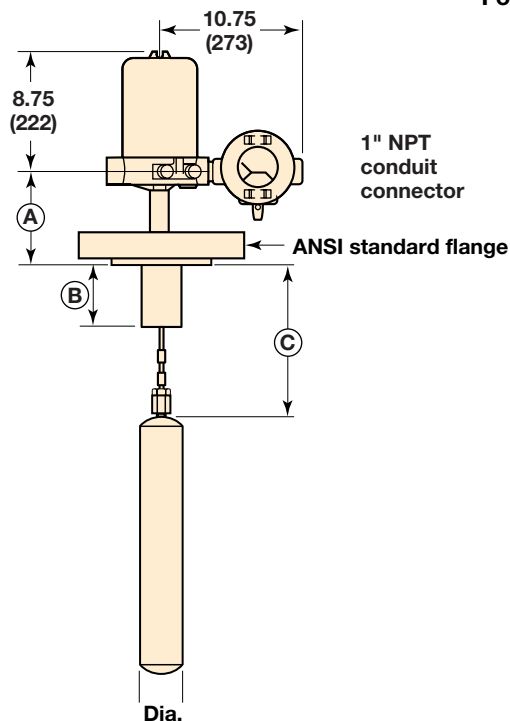
STANDARD PRESSURE MODELS E5A, E5B, E5C, E5D, E5E, E5F



**HT Integral Side/Bottom Mount**  
Fourth Digit Codes G, R, T



**Remote Side/Side Mount**  
Fourth Digit Codes A, B, C



**E5A/E5B Series with Integral Top Mounting**  
Fourth Digit codes J, K, L

# D I M E N S I O N A L   S P E C I F I C A T I O N S

I N C H E S   ( M M )

Cage Pressure Rating	Process Conn. Size	Spring S.G. Range	Dimension							
			B	C	D	E	F	G	H	J
150#, 300# & 600# ANSI	1½"	0.23 – 0.54	6.75 (171)	9.31 (236)	9.31 (236)	3.19 (81)	7.00 (178)	3.00 (76)	3.00 + range (76 + range)	5.43 (138)
		0.55 – 1.09	4.75 (121)	7.31 (186)	7.31 (186)	3.19 (81)	7.00 (178)	3.00 (76)	3.00 + range (76 + range)	5.43 (138)
		1.10 – 2.20	4.75 (121)	7.31 (186)	7.31 (186)	3.19 (81)	7.00 (178)	3.00 (76)	3.00 + range (76 + range)	5.43 (138)
	2"	0.23 – 0.54	6.75 (171)	9.31 (236)	9.31 (236)	3.31 (84)	7.13 (181)	3.00 (76)	3.00 + range (76 + range)	5.55 (141)
		0.55 – 1.09	4.75 (121)	7.31 (186)	7.31 (186)	3.31 (84)	7.13 (181)	3.00 (76)	3.00 + range (76 + range)	5.55 (141)
		1.10 – 2.20	4.75 (121)	7.31 (186)	7.31 (186)	3.31 (84)	7.13 (181)	3.00 (76)	3.00 + range (76 + range)	5.55 (141)
900# ANSI	1½"	0.55 – 1.09	6.75 (171)	9.31 (236)	9.31 (236)	3.19 (81)	7.00 (178)	3.00 (76)	3.00 + range (76 + range)	5.43 (138)
	2"	0.55 – 1.09	6.75 (171)	9.31 (236)	9.31 (236)	3.31 (84)	7.13 (181)	3.00 (76)	3.00 + range (76 + range)	5.55 (141)
1500# ANSI	1½"	0.55 – 1.09	6.75 (171)	9.31 (236)	9.31 (236)	4.00 (102)	7.93 (201)	3.44 (87)	3.44 + range (87 + range)	9.13 (232)
	2"	0.55 – 1.09	6.75 (171)	9.31 (236)	9.31 (236)	4.38 (111)	8.87 (225)	3.44 (87)	3.44 + range (87 + range)	10.13 (257)
2500# ANSI	1½"	0.55 – 1.09	6.75 (171)	9.31 (236)	9.31 (236)	4.00 (102)	9.06 (230)	3.44 (87)	3.44 + range (87 + range)	10.25 (260)
	2"	0.55 – 1.09	6.75 (171)	9.31 (236)	9.31 (236)	4.38 (111)	9.87 (251)	3.44 (87)	3.44 + range (87 + range)	11.13 (283)

Cage Pressure Rating	Head Flange Size	'A' Dimension			
		A, B, C, Q, R, T	D, E, F	J, K, L,	M, N, P
150# ANSI	3"	10.69 (271)	18.69 (475)	6.69 (170)	14.69 (372)
	4"	10.69 (271)	18.69 (475)	6.69 (170)	14.69 (372)
	6"	10.75 (273)	18.75 (476)	6.75 (171)	14.75 (375)
300# ANSI	3"	10.88 (276)	18.88 (480)	6.88 (175)	14.88 (378)
	4"	11.00 (279)	19.00 (483)	7.00 (178)	15.00 (381)
	6"	11.19 (284)	19.19 (487)	7.19 (183)	15.19 (386)
600# ANSI	3"	11.25 (286)	19.25 (489)	7.25 (184)	15.25 (387)
	4"	11.50 (292)	19.50 (495)	7.50 (190)	15.50 (394)
	6"	11.88 (302)	19.88 (505)	7.88 (200)	15.88 (403)
900# ANSI	3"	11.50 (292)	19.50 (495)	7.50 (190)	15.50 (394)
	4"	11.75 (298)	19.75 (502)	7.75 (197)	15.75 (400)
	6"	12.19 (310)	20.19 (513)	8.19 (208)	16.19 (411)
1500# ANSI	4"	12.13 (308)	20.13 (511)	8.13 (206)	16.13 (410)
	6"	13.25 (337)	21.25 (540)	9.25 (235)	17.25 (438)
2500# ANSI	4"	13.00 (330)	21.00 (533)	9.00 (229)	17.00 (432)
	6"	14.25 (362)	22.25 (566)	10.25 (260)	18.25 (464)

# STEAM APPLICATIONS

## MODEL NUMBER



Models available for quick shipment, usually within one week after factory receipt of a purchase order, through the Expedite Ship Plan (ESP).

## DESIGN TYPE

E 5	Standard design EZ Module level
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## MOUNTING AND CHAMBER MATERIALS

Flanged top ①		Cage side/Bottom		Cage Side/side		Tank Connection
steel	316 SS②	steel	316 SS②	steel	316 SS②	Chamber Material
A	B	C	D	E	F	code

① Adjustable 8' hanger cable (p/n 32-3110-001), required when distance from flange face to top of displacer must be greater than 9.31".

② Bolting material is alloy steel.

## SPECIFIC GRAVITY AND PROCESS TEMPERATURE

Integral	Integral or Remote		HT integral or remote	Transmitter Mounting
+300° F (+150° C)	+400° F (+200° C)	+450° F (+230° C)	+500° F (+260° C)	Maximum Process Temperature
K	B	N	R	0.55 – 1.09 specific gravity (all pressures)③

③ Consult factory for lower specific gravity design.

## TANK CONNECTION

### Top mounted connection type

ANSI HEAD Flange rating						
RF 150 lbs	RF 300 lbs	RF 600 lbs	RF 900 lbs	RF 1500 lbs	RF ④ 2500 lbs	Size
G3	G4	G5	G6	n/a	n/a	3"
H3	H4	H5	H6	H7	H8	4"
K3	K4	K5	K6	K7	K8	6"

④ Maximum pressure rating is 5100 psig (351 bar).

### External cage models

ANSI Cage rating						
RF 150 lbs	RF 300 lbs	RF 600 lbs	RF 900 lbs	RF 1500 lbs	RF ④ 2500 lbs	Size/Type
C5	C7	C9	L5	L7	L9	1½" NPT
C6	C8	C0	M5	M7	M9	1½" S.W.
P3	P4	P5	P6	P7	P8	1½" flanged
D5	D7	D9	L6	L8	L0	2" NPT
D6	D8	D0	M6	M8	M0	2" S.W.
Q3	Q4	Q5	Q6	Q7	Q8	2" flanged

## LEVEL RANGE

All Pressures					Up to 600 lbs					
14 356	32 813	48 1219	60 1524	72 1829	84 2134	96 2438	108 2743	120 3048		inches mm
A	B	C	D	E	F	G	H	I		code

TRANSMITTER – ELECTRONICS (see opposite page)

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# STEAM APPLICATIONS

## MODEL NUMBER

### TRANSMITTER CONFIGURATION AND ACCESSORIES

+300° F (+150° C) (Fourth digit K only)						
Integral		Remote				
Digital	Analog	Digital	Analog	Input Voltage	Display	Agency Approval
<b>ESA</b>	<b>EZA</b>	n/a	n/a	24 VDC	None	EP – FM, CSA ⑤
n/a	<b>EZB</b>	n/a	n/a	120 VAC	None	EP – FM, CSA
n/a	<b>EZC</b>	n/a	n/a	240 VAC	None	EP – FM, CSA
<b>ESD</b>	<b>EZD</b>	n/a	n/a	24 VDC	None	IS/Ni – FM, CSA, ATEX ⑥
<b>ESG</b>	<b>EZG</b>	n/a	n/a	24 VDC	Analog	EP – FM, CSA ⑤
<b>ESI</b>	<b>EZI</b>	n/a	n/a	24 VDC	Analog	IS/Ni – FM, CSA, ATEX ⑥
n/a	<b>EZL</b>	n/a	n/a	120 VAC	Analog	EP – FM, CSA
n/a	<b>EZN</b>	n/a	n/a	240 VAC	Analog	EP – FM, CSA
<b>ESJ</b>	n/a	n/a	n/a	24 VDC	Digital	IS/Ni – FM, CSA
<b>ES9</b>	n/a	n/a	n/a	24 VDC	Digital	EP – FM, CSA ⑤

+400° F (+200° C) (Fourth digit B only)						
+450° F (+230° C) (Fourth digit N only)						
Integral		Remote				
Digital	Analog	Digital	Analog	Input Voltage	Display	Agency Approval
<b>ESE</b>	<b>EZE</b>	<b>GSH</b>	<b>GZH</b>	24 VDC	None	EP – FM, CSA ⑤⑦
<b>ESH</b>	<b>EZH</b>	n/a	n/a	24 VDC	None	IS/Ni – FM, CSA, ATEX ⑥
n/a	n/a	n/a	<b>GZ2</b>	120 VAC	None	EP – FM, CSA
n/a	n/a	n/a	<b>GZ3</b>	240 VAC	None	EP – FM, CSA
<b>ESF</b>	<b>EZF</b>	<b>GSK</b>	<b>GZK</b>	24 VDC	Analog	EP – FM, CSA ⑤⑦
<b>ESK</b>	<b>EZK</b>	n/a	n/a	24 VDC	Analog	IS/Ni – FM, CSA, ATEX ⑥
n/a	n/a	n/a	<b>GZ5</b>	120 VAC	Analog	EP – FM, CSA
n/a	n/a	n/a	<b>GZ6</b>	240 VAC	Analog	EP – FM, CSA
<b>ES7</b>	n/a	<b>GS7</b>	n/a	24 VDC	Digital	EP – FM, CSA ⑤⑦
<b>ES8</b>	n/a	n/a	n/a	24 VDC	Digital	IS/Ni – FM, CSA

+500° F (+250° C) (Fourth digit R only)						
HT Integral		Remote				
Digital	Analog	Digital	Analog	Input Voltage	Display	Agency Approval
<b>RSQ</b>	<b>RZQ</b>	n/a	n/a	24 VDC	None	IS/Ni – FM, CSA, ATEX ⑥
<b>RSW</b>	<b>RZW</b>	<b>GSQ</b>	<b>GZQ</b>	24 VDC	None	EP – FM, CSA ⑤⑦
n/a	n/a	n/a	<b>GZR</b>	120 VAC	None	EP – FM, CSA
n/a	n/a	n/a	<b>GZS</b>	240 VAC	None	EP – FM, CSA
<b>RST</b>	<b>RZT</b>	n/a	n/a	24 VDC	Analog	IS/Ni – FM, CSA, ATEX ⑥
<b>RSX</b>	<b>RZX</b>	<b>GST</b>	<b>GZT</b>	24 VDC	Analog	EP – FM, CSA ⑤⑦
n/a	n/a	n/a	<b>GZU</b>	120 VAC	Analog	EP – FM, CSA
n/a	n/a	n/a	<b>GZV</b>	240 VAC	Analog	EP – FM, CSA
<b>RS4</b>	n/a	<b>GS4</b>	n/a	24 VDC	Digital	EP – FM, CSA ⑤⑦
<b>RSZ</b>	n/a	n/a	n/a	24 VDC	Digital	IS/Ni – FM, CSA

⑤ ATEX EP approval available on standard 900#, 1500#, and 2500# models. 150#, 300#, and #600 models require modification for ATEX EP approval and must be "X'd" for a heavy wall e-tube.

⑥ ATEX IS/Ni approval applies to Digital ES II only. Analog version is not ATEX IS/Ni approved

⑦ ATEX approval on integral and HT integral mount heads only.

### REMOTE CONNECTING CABLE

Up to +400° F (+204° C), specify cable 037-3218-0XX, where last two digits are cable length in feet from 1–75 feet.

Up to +500° F (+260° C), specify cable 037-3220-0XX, where last two digits are cable length in feet from 1–75 feet.

Last 3 Digits of Model Number

# NON-STEAM APPLICATIONS

## MODEL NUMBER

### DESIGN TYPE

E 5	Standard design EZ Module level
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### MOUNTING AND CHAMBER MATERIALS

Flanged top ①		Cage side/bottom		Cage side/side		Tank Connection
steel	316 SS ②	steel	316 SS ②	steel	316 SS ②	Chamber Material
A	B	C	D	E	F	code

① Adjustable 8' hanger cable (p/n 32-3110-001), required when distance from flange face to top of displacer must be greater than 9.31".

② Bolting material is alloy steel.

### SPECIFIC GRAVITY AND PROCESS TEMPERATURE

Integral			Integral or remote	Integral	HT Integral or remote	Transmitter Mounting
+300° F (+150° C)	+400° F (+200° C)	+450° F (+230° C)	+500° F (+260° C)	+550° F (+290° C)	+600° F (+315° C)	Maximum Process Temperature
J	A	M	A	D	Q	0.23 – 0.54 specific gravity (up to 600 lbs) ③
K	B	N	B	E	R	0.55 – 1.09 specific gravity (all pressures)
L	C	P	C	F	T	1.10 – 2.20 specific gravity (up to 600 lbs)

③ Consult factory for lower specific gravity design

### TANK CONNECTION

#### Top mounted connection type

ANSI HEAD Flange rating						
RF 150 lbs	RF 300 lbs	RF 600 lbs	RF 900 lbs	RF 1500 lbs	RF ④ 2500 lbs	Size
G3	G4	G5	G6	n/a	n/a	3"
H3	H4	H5	H6	H7	H8	4"
K3	K4	K5	K6	K7	K8	6"

④ Maximum pressure rating is 5100 psig (351 bar).

#### External cage models

ANSI Cage rating						
RF 150 lbs	RF 300 lbs	RF 600 lbs	RF 900 lbs	RF 1500 lbs	RF ④ 2500 lbs	Size/Type
C5	C7	C9	L5	L7	L9	1½" NPT
C6	C8	C0	M5	M7	M9	1½" S.W.
P3	P4	P5	P6	P7	P8	1½" flanged
D5	D7	D9	L6	L8	L0	2" NPT
D6	D8	D0	M6	M8	M0	2" S.W.
Q3	Q4	Q5	Q6	Q7	Q8	2" flanged

### LEVEL RANGE

All Pressures				Up to 600 lbs					
14 356	32 813	48 1219	60 1524	72 1829	84 2134	96 2438	108 2743	120 3048	inches mm
A	B	C	D	E	F	G	H	I	code

TRANSMITTER – ELECTRONICS (see opposite page)

E	5								
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# NON-STEAM APPLICATIONS

## MODEL NUMBER

### TRANSMITTER CONFIGURATION AND ACCESSORIES

+300° F (+150° C) (Fourth digits J, K, L only)						
+400° F (+200° C) (Fourth digits A, B, C only)						
+450° F (+230° C) (Fourth digits M, N, P only)						
+550° F (+290° C) (Fourth digits D, E, F only)						
Integral		Remote				
Digital	Analog	Digital	Analog	Input Voltage	Display	Agency Approval
<b>ESA</b>	<b>EZA</b>	n/a	n/a	24 VDC	None	EP – FM, CSA ⑤
n/a	<b>EZB</b>	n/a	n/a	120 VAC	None	EP – FM, CSA
n/a	<b>EZC</b>	n/a	n/a	240 VAC	None	EP – FM, CSA
<b>ESD</b>	<b>EZD</b>	n/a	n/a	24 VDC	None	IS/Ni – FM, CSA, ATEX ⑥
<b>ESG</b>	<b>EZG</b>	n/a	n/a	24 VDC	Analog	EP – FM, CSA ⑤
<b>ESI</b>	<b>EZI</b>	n/a	n/a	24 VDC	Analog	IS/Ni – FM, CSA, ATEX ⑥
n/a	<b>EZL</b>	n/a	n/a	120 VAC	Analog	EP – FM, CSA
n/a	<b>EZN</b>	n/a	n/a	240 VAC	Analog	EP – FM, CSA
<b>ESJ</b>	n/a	n/a	n/a	24 VDC	Digital	IS/Ni – FM, CSA
<b>ES9</b>	n/a	n/a	n/a	24 VDC	Digital	EP – FM, CSA ⑤

+500° F (+260° C) (Fourth digits A, B, C only)						
Integral		Remote				
Digital	Analog	Digital	Analog	Input Voltage	Display	Agency Approval
<b>ESE</b>	<b>EZE</b>	<b>GSH</b>	<b>GZZ</b>	24 VDC	None	EP – FM, CSA ⑤⑦
<b>ESH</b>	<b>EZH</b>	n/a	n/a	24 VDC	None	IS/Ni – FM, CSA, ATEX ⑥
n/a	n/a	n/a	<b>GZ2</b>	120 VAC	None	EP – FM, CSA
n/a	n/a	n/a	<b>GZ3</b>	240 VAC	None	EP – FM, CSA
<b>ESF</b>	<b>EZF</b>	<b>GSK</b>	<b>GZK</b>	24 VDC	Analog	EP – FM, CSA ⑤⑦
<b>ESK</b>	<b>EZK</b>	n/a	n/a	24 VDC	Analog	IS/Ni – FM, CSA, ATEX ⑥
n/a	n/a	n/a	<b>GZ5</b>	120 VAC	Analog	EP – FM, CSA
n/a	n/a	n/a	<b>GZ6</b>	240 VAC	Analog	EP – FM, CSA
<b>ES7</b>	n/a	<b>GS7</b>	n/a	24 VDC	Digital	EP – FM, CSA ⑤⑦
<b>ES8</b>	n/a	n/a	n/a	24 VDC	Digital	IS/Ni – FM, CSA

+600° F (+315° C) (Fourth digits Q, R, T only)						
HT Integral		Remote				
Digital	Analog	Digital	Analog	Input Voltage	Display	Agency Approval
<b>RSQ</b>	<b>RZQ</b>	n/a	n/a	24 VDC	None	IS/Ni – FM, CSA, ATEX ⑥
<b>RSW</b>	<b>RZW</b>	<b>GSQ</b>	<b>GZQ</b>	24 VDC	None	EP – FM, CSA ⑤⑦
n/a	n/a	n/a	<b>GZR</b>	120 VAC	None	EP – FM, CSA
n/a	n/a	n/a	<b>GZS</b>	240 VAC	None	EP – FM, CSA
<b>RST</b>	<b>RZT</b>	n/a	n/a	24 VDC	Analog	IS/Ni – FM, CSA, ATEX ⑥
<b>RSX</b>	<b>RZX</b>	<b>GST</b>	<b>GZT</b>	24 VDC	Analog	EP – FM, CSA ⑤⑦
n/a	n/a	n/a	<b>GZU</b>	120 VAC	Analog	EP – FM, CSA
n/a	n/a	n/a	<b>GZV</b>	240 VAC	Analog	EP – FM, CSA
<b>RSZ</b>	n/a	n/a	n/a	24 VDC	Digital	IS/Ni – FM, CSA
<b>RS4</b>	n/a	<b>GS4</b>	n/a	24 VDC	Digital	EP – FM, CSA ⑤⑦

⑤ ATEX EP approval available on standard 900#, 1500#, and 2500# models. 150#, 300#, and #600 models require modification for ATEX EP approval and must be "X'd" for a heavy wall e-tube.

⑥ ATEX IS/Ni approval applies to Digital ES II only. Analog version is not ATEX IS/Ni approved

⑦ ATEX approval on integral and HT integral mount heads only.

### REMOTE CONNECTING CABLE

Up to +500° F (+260° C), specify cable 037-3218-0XX, where last two digits are cable length in feet from 1–75 feet.

Up to +600° F (+316° C), specify cable 037-3220-0XX, where last two digits are cable length in feet from 1–75 feet.

Last 3 Digits of Model Number

## QUALITY

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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.

Magnetrol's 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.

## ESP

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### **E**xpedite **S**hip **P**lan

Several Electronic Modulelevel Displacer Transmitters are available for quick shipment, usually within one week after factory receipt of a purchase order, through the Expedite Ship Plan (ESP).

Models covered by ESP service are color coded in the selection data charts.

To take advantage of ESP, simply match the color coded model number codes (standard dimensions apply).

ESP service may not apply to orders of ten units or more. Contact your local representative for lead times on larger volume orders, as well as other products and options.

## WARRANTY

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All Magnetrol electronic level and flow controls are warranted free of defects in materials or workmanship for one full year 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 48-618.



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