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

DESCRIPTION

The Digital ES II and Analog EZ Modulevels 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 Modulevel has microprocessor-based electronics with HART compatible output, in addition to the standard 4-20 mA output, while the Analog EZ Modulevel 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

DIGITAL ES AND ANALOG EZ MODULEVEL

- Two-wire, loop-powered, intrinsically safe.
- Cast iron, NEMA 4X, Cl I Div I 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.
- Calibration stand available for bench calibration.
- IS, XP and Non-incendive approvals by FM, CSA and CENELEC.
- 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 MODULEVEL

- HART network compatible.
- Remote calibration without level movement via HART compatible hand held unit.
- Standard output range from 3.8 to 20.5 mA.
- Specific gravity adjustment without stopping process via HART compatible hand held unit.
- Push button program local calibration.
- Continuous self-test with 22mA 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 hand held 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.

HAND HELD OPTION

Digital ES II models are compatible with Rosemount, Inc. model 275 D9E (English version) Hand Held 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 ①:	Steam applications: -20° F to +500° F (-29° C to +260° C)
	Non-Steam applications: -20° F to +600° F (-29° C to +315° C)
Maximum Process Pressure:	4265 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. 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 22mA, 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:	22mA 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: ± 0.25% of full span ①
	Mechanical/electrical: +/- 0.25% of full span
Repeatability:	± 0.20% of full span ①
Resolution:	0.05 % of range ± 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)

① 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
FM	**XE6X-XXXX & XE5X-XXXX** with transmitter codes:	**Explosion Proof**
	EZA, B, C, G, L, N	Class I, Div 1; Groups B, C, D
	ESA, G, 9	Class II, Div 1; Groups E, F, G
	GZH, K, Q, R, S, T, U, V, 2, 3, 5, 6	Class III, NEMA 4X
	GSH, K, Q, T, 4, 7	
	RZW, X	
	RSW, X, 4	
	XE6X-XXXX & XE5X-XXXX with transmitter codes:	**Intrinsically Safe w/**
	RZQ,T	**Intrinsically Safe Connections**
	RSQ, T, Z	Class I, II, III, Div 1, Groups B,C,D,E,F,G
		Nema 4X
		Entity
	E6X-XXXX & E5X-XXXX with transmitter codes:	**Intrinsically Safe**
	EZD, I	Class I, Div 1; Groups B, C, D
	ESD, I, J	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	**E6X-XXXX & E5X-XXXX** with transmitter codes:	**Non-Incendive**
	EZD, I	suitable for:
	ESD, I, J	Class I, Div 2, Groups A, B, C, D
	RZQ, T	Class II, Div 2, Groups F, G
	RSQ, T, Z	Class III, Div. 2, NEMA 4X
CSA	**XE6X-XXXX & XE5X-XXXX** with transmitter codes:	**Explosion Proof**
	EZA, B, C, G, L, N	Class I, Div 1, Groups B, C, D
	ESA, G, 9	Class II, Div 1, Groups E, F, G
	GZH, K, Q, R, S, T, U, V, 2, 3, 5, 6	Class III, Type 4X
	GSH, K, Q, T, 4, 7	
	RZW, X	
	RSW, X, 4	
	E6X-XXXX & E5X-XXXX with transmitter codes:	**Intrinsically Safe**
	EZD, I	Class I, Div 1, Groups A, B, C, D
	ESD, I, J	Class II, Div 1, Groups E, F, G
	GZH, K, Q, T②	Class III, Type 4X
	GSH, K, Q, T, 4, 7②	Entity
	RZQ, T	
	RSQ, T, Z	
	E6X-XXXX & E5X-XXXX with transmitter codes:	**Non-Incendive**
	EZD, I	suitable for:
	ESD, I, J	Class I, Div 2, Groups A, B, C, D
	GZH, K, Q, T②	Class II, Div 2, Groups E, F, G
	GSH, K, Q, T, 4, 7②	Class III, Type 4X
	RZQ, T	
	RSQ, T, Z	
CENELEC	**EXX-XXXX** with transmitter codes	**EEx d IIC T6/T3**
	EZA, G	
	ESA, G, 9	
	RZW, X	
	RSW, X, 4	
	EXX-XXXX with transmitter codes	**EEx ia IIC T6**
	EZD, I	
	ESD, I, J①	
	RZQ, T	
	RSQ, T, Z①	
	EXX-XXXX with transmitter codes	**EEx ib IIC T4**
	EZD, I	
	ESD, I, J①	
	RZQ, T	
	RSQ, T, Z①	

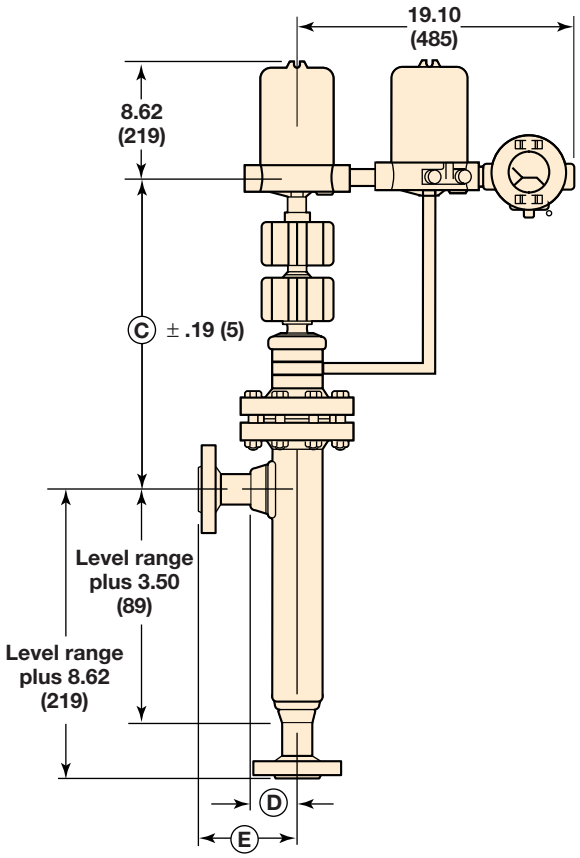
CE These units have been tested to EN 50081-2 and EN 50082-2 and are in compliance with the EMC Directive 89/336/EEC.

① Transmitter only is CENELEC approved. The digital meter is approved by BASEEFA only. Unit will be supplied with two separate approvals.

② If IS or NI CSA name plate is required, this must be specified at time of order placement.

DIMENSIONAL SPECIFICATIONS

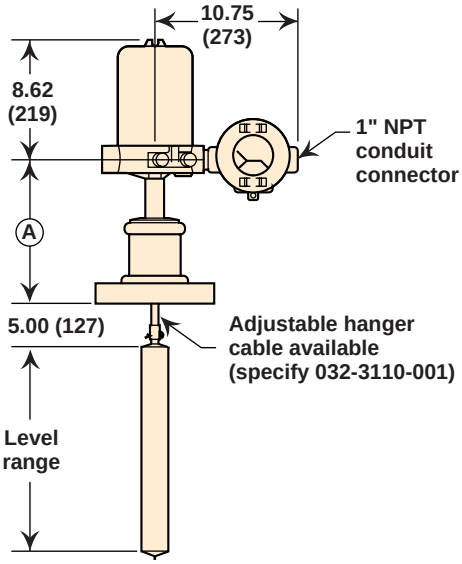
STANDARD PRESSURE MODELS E61, E62, E63, E64, E65, E66



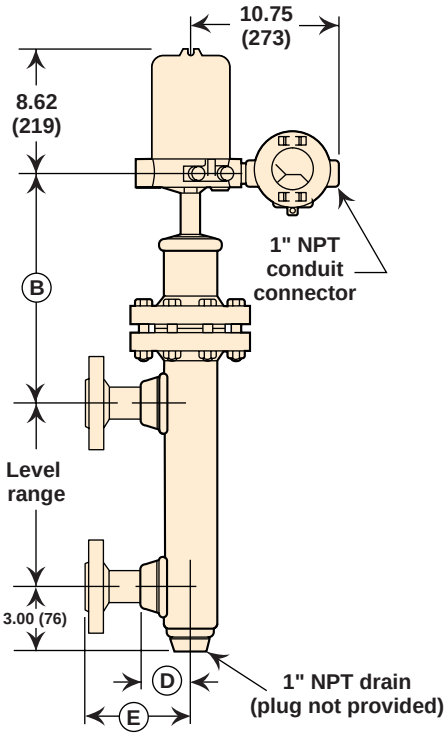
HT Integral Side/Bottom Mount
Fourth Digit Codes 7, 8, 9

Range Spring Specific Gravity Rating	A	B	C
.11 to .54	14.06 (357)	19.06 (484)	23.25 (591)
.55 to 1.09	12.12 (308)	17.12 (435)	21.31 (541)
1.10 to 2.20			

Outlet Size	D	E
1½"	3.19 (81)	6.25 (159)
2"	3.31 (84)	6.25 (159)



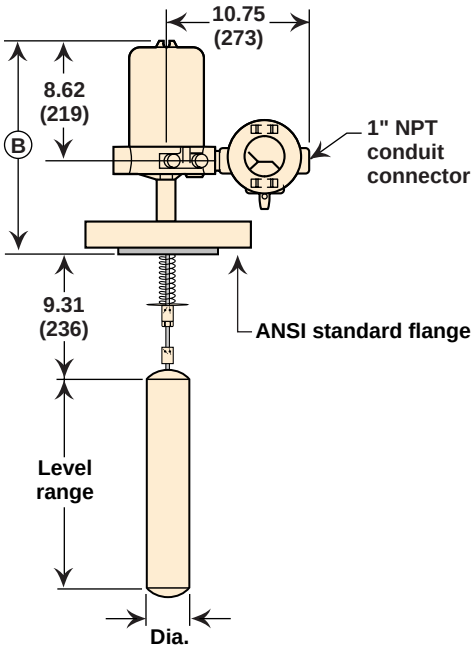
Integral Top Mount



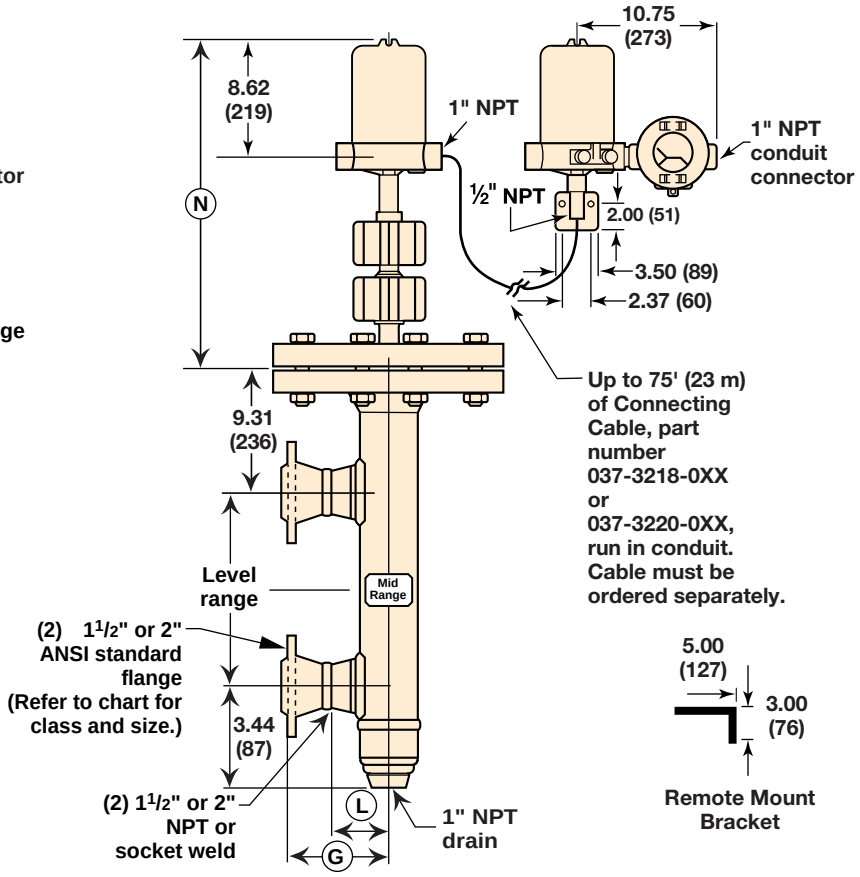
Integral Side/Side Mount
Fourth Digit Codes 1, 2, 3

DIMENSIONAL SPECIFICATIONS

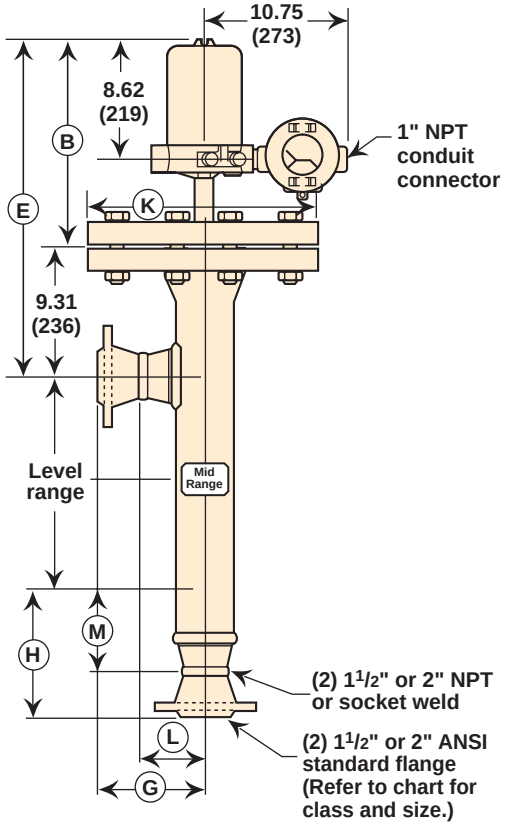
HIGH PRESSURE MODELS E51, E53, E55



E51 Series with Integral Top Mounting
900, 1500, 2500 lb. Class



E55 Series with Side/Side Connections, Remote Mount
900, 1500, 2500 lb. Class



E53 Series with Upper Side/Bottom Connections, Integral Mount
900, 1500, 2500 lb. Class

Flange Size & Class	Dimensions					
	B	E	G	H	K	N
1½" – 900 lb.	16.38 (416)	25.81 (655)	7.25 (184)	8.43 (214)	11.50 (292)	20.57 (522)
2" – 900 lb.			8.18 (208)	9.38 (238)		
1½" – 1500 lb.	16.75 (425)	26.19 (665)	7.93 (201)	9.13 (232)	12.25 (311)	20.94 (532)
2" – 1500 lb.			8.87 (225)	10.13 (257)		
1½" – 2500 lb.	17.62 (447)	27.06 (687)	9.06 (230)	10.25 (267)	14.00 (356)	21.81 (554)
2" – 2500 lb.			9.87 (251)	11.13 (283)		

Outlet Size	Dimensions	
	L	M
1½" NPT or Socket Weld	4.00 (102)	3.44 (87)
2" NPT or Socket Weld	4.38 (111)	3.50 (89)

STEAM APPLICATIONS (maximum 600 lbs.)

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 6	Standard design EZ Modulevel

MOUNTING AND CHAMBER MATERIALS

flanged top ①		cage side/bottom		cage side/side		tank connection
steel	316 SS	steel	316 SS	steel	316 SS	chamber material
1	2	3	4	5	6	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 5.00"

SPECIFIC GRAVITY AND PROCESS TEMPERATURE

integral	remote	HT integral or remote	transmitter mounting
+300° F (+150° C)	+400° F (+200° C)	+500° F (+260° C)	maximum temperature
1	7	7	0.23 - 0.54 specific gravity ②
2	8	8	0.55 - 1.09 specific gravity
3	9	9	1.10 - 2.20 specific gravity

② 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	Size
G3	G4	G5	3"
H3	H4	H5	4"
K3	K4	K5	6"

External cage models

ANSI Cage rating			
RF 150 lbs	RF 300 lbs	RF 600 lbs	Size / Type
C5	C7	C9	1½" NPT
C6	C8	C0	1½" S.W.
P3	P4	P5	1½" flanged
D5	D7	D9	2" NPT
D6	D8	D0	2" S.W.
Q3	Q4	Q5	2" flanged

LEVEL RANGE

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 6 [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

complete order code for Standard EZ Modulevel transmitter

TRANSMITTER TYPE AND MOUNTING

E	Electronic Integral Mount
G	Electronic Remote Mount
R	Electronic High-temp Integral Mount

TRANSMITTER OUTPUT

Z	4-20 mA only (Analog), 24 Vdc, 120 Vac or 240 Vac
S	4-20 mA with HART (Digital) ①, 24 Vdc only

① HART communicator sold separately

TRANSMITTER CONFIGURATION AND ACCESSORIES

	Code	Display	Input Voltage	Agency Approval
Integral Mount Fourth Digits 1, 2, 3 only Eighth Digit E only +300° F max.	A	None	24 Vdc	EP – FM, CSA, CENELEC
	B	None	120 Vac ②	EP – FM, CSA
	C	None	240 Vac ②	EP – FM, CSA
	D	None	24 Vdc	IS/NI – FM, CSA, CENELEC
	G	Analog	24 Vdc	EP – FM, CSA, CENELEC
	I	Analog	24 Vdc	IS/NI – FM, CSA, CENELEC
	L	Analog	120 Vac ②	EP – FM, CSA
	N	Analog	240 Vac ②	EP – FM, CSA
	J	Digital ③	24 Vdc	IS/NI – FM, CSA, CENELEC
	9	Digital ③	24 Vdc	EP – FM, CSA, CENELEC
Remote Mount Fourth Digits 7, 8, 9 only Eighth Digit G only +400° F max.	H	None	24 Vdc	EP – FM, CSA
	2	None	120 Vac ②	EP – FM, CSA
	3	None	240 Vac ②	EP – FM, CSA
	K	Analog	24 Vdc	EP – FM, CSA
	5	Analog	120 Vac ②	EP – FM, CSA
	6	Analog	240 Vac ②	EP – FM, CSA
	7	Digital ③	24 Vdc	EP – FM, CSA
HT-Integral Mount Fourth Digits 7 ,8, 9 only Eighth Digit R only +500° F max.	Q	None	24 Vdc	IS/NI – FM, CSA, CENELEC
	W	None	24 Vdc	EP – FM, CSA, CENELEC
	T	Analog	24 Vdc	IS/NI – FM, CSA, CENELEC
	X	Analog	24 Vdc	EP – FM, CSA, CENELEC
	4	Digital ③	24 Vdc	EP – FM, CSA, CENELEC
	Z	Digital ③	24 Vdc	IS/NI – FM, CSA, CENELEC
Remote Mount Fourth Digits 7, 8, 9 only Eighth Digit G only +500° F max.	Q	None	24 Vdc	EP – FM, CSA
	R	None	120 Vac ②	EP – FM, CSA
	S	None	240 Vac ②	EP – FM, CSA
	T	Analog	24 Vdc	EP – FM, CSA
	U	Analog	120 Vac ②	EP – FM, CSA
	V	Analog	240 Vac ②	EP – FM, CSA
	4	Digital ③	24 Vdc	EP – FM, CSA

② 120 & 240 Vac available on Analog unit only (ninth digit Z)

③ Digital meter available on Digital Hart compatible unit only (ninth digit S)

☐ ☐ ☐ Last 3 Digits of Model Number

REMOTE CONNECTING CABLE

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

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

MODEL NUMBER

DESIGN TYPE

E 5	Standard design EZ Modulevel

MOUNTING AND CHAMBER MATERIALS

flanged top ①	cage side/bottom	cage side/side	tank connection with steel chamber material
1	3	5	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"

SPECIFIC GRAVITY AND PROCESS TEMPERATURE

integral	remote	HT integral or remote	transmitter mounting
+300° F (+150° C)	+400° F (+200° C)	+500° F (+260° C)	maximum temperature
2	8	8	0.55 - 1.09 specific gravity

TANK CONNECTION

Top mounted connection type

ANSI HEAD Flange rating			
RF 900 lbs	RF 1500 lbs	RF 2500 lbs*	Size
H6	H7	H8	4"
K6	K7	K8	6"

* Flanges are ANSI 2500 lbs., but maximum pressure rating is 4265 psig @ 100° F (294 bar @ 38° C).

External cage models

ANSI Cage rating			
RF 900 lbs	RF 1500 lbs	RF 2500 lbs*	Size / Type
L5	L7	L9	1½" NPT
M5	M7	M9	1½" S.W.
P6	P7	P8	1½" flanged
L6	L8	L0	2" NPT
M6	M8	M0	2" S.W.
Q6	Q7	Q8	2" flanged

* Flanges are ANSI 2500 lbs., but maximum pressure rating is 4265 psig @ 100° F (294 bar @ 38° C).

LEVEL RANGE

14 356	32 813	48 1219	60 1524	inches mm
A	B	C	D	code

TRANSMITTER – ELECTRONICS (see opposite page)

E	5								

complete order code for Standard EZ Modulevel transmitter

TRANSMITTER TYPE AND MOUNTING

E	Electronic Integral Mount
G	Electronic Remote Mount
R	Electronic High-temp Integral Mount

TRANSMITTER OUTPUT

Z	4-20 mA only (Analog), 24 Vdc, 120 Vac or 240 Vac
S	4-20 mA with HART (Digital) ①, 24 Vdc only

① HART communicator sold separately

TRANSMITTER CONFIGURATION AND ACCESSORIES

	Code	Display	Input Voltage	Agency Approval
Integral Mount	A	None	24 Vdc	EP – FM, CSA, CENELEC
	B	None	120 Vac ②	EP – FM, CSA
	C	None	240 Vac ②	EP – FM, CSA
	D	None	24 Vdc	IS/NI – FM, CSA, CENELEC
Fourth Digit 2 only	G	Analog	24 Vdc	EP – FM, CSA, CENELEC
	I	Analog	24 Vdc	IS/NI – FM, CSA, CENELEC
Eighth Digit E only	L	Analog	120 Vac ②	EP – FM, CSA
	N	Analog	240 Vac ②	EP – FM, CSA
+300° F max.	J	Digital ③	24 Vdc	IS/NI – FM, CSA, CENELEC
	9	Digital ③	24 Vdc	EP – FM, CSA, CENELEC
Remote Mount	H	None	24 Vdc	EP – FM, CSA
	2	None	120 Vac ②	EP – FM, CSA
Fourth Digit 8 only	3	None	240 Vac ②	EP – FM, CSA
	K	Analog	24 Vdc	EP – FM, CSA
Eighth Digit G only	5	Analog	120 Vac ②	EP – FM, CSA
	6	Analog	240 Vac ②	EP – FM, CSA
+400° F max.	7	Digital ③	24 Vdc	EP – FM, CSA
HT-Integral Mount	Q	None	24 Vdc	IS/NI – FM, CSA, CENELEC
	W	None	24 Vdc	EP – FM, CSA, CENELEC
Fourth Digit 8 only	T	Analog	24 Vdc	IS/NI – FM, CSA, CENELEC
	X	Analog	24 Vdc	EP – FM, CSA, CENELEC
Eighth Digit R only	4	Digital ③	24 Vdc	EP – FM, CSA, CENELEC
+500° F max.	Z	Digital ③	24 Vdc	IS/NI – FM, CSA, CENELEC
Remote Mount	Q	None	24 Vdc	EP – FM, CSA
	R	None	120 Vac ②	EP – FM, CSA
Fourth Digit 8 only	S	None	240 Vac ②	EP – FM, CSA
	T	Analog	24 Vdc	EP – FM, CSA
Eighth Digit G only	U	Analog	120 Vac ②	EP – FM, CSA
	V	Analog	240 Vac ②	EP – FM, CSA
+500° F max.	4	Digital ③	24 Vdc	EP – FM, CSA

② 120 & 240 Vac available on Analog unit only (ninth digit Z)

③ Digital meter available on Digital Hart compatible unit only (ninth digit S)

☐ ☐ ☐ Last 3 Digits of Model Number

REMOTE CONNECTING CABLE

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

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

NON-STEAM APPLICATIONS (maximum 600 lbs.)

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 6	Standard design EZ Modulevel

MOUNTING AND CHAMBER MATERIALS

flanged top ①		cage side/bottom		cage side/side		tank connection
steel	316 SS	steel	316 SS	steel	316 SS	chamber material
1	2	3	4	5	6	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 5.00"

SPECIFIC GRAVITY AND PROCESS TEMPERATURE

integral	remote	HT integral or remote	transmitter mounting
+400° F (+200° C)	+500° F (+290° C)	+600° F (+315° C)	maximum temperature
1	7	7	0.23 - 0.54 specific gravity ②
2	8	8	0.55 - 1.09 specific gravity
3	9	9	1.10 - 2.20 specific gravity

② 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	Size
G3	G4	G5	3"
H3	H4	H5	4"
K3	K4	K5	6"

External cage models

ANSI Cage rating			
RF 150 lbs	RF 300 lbs	RF 600 lbs	Size / Type
C5	C7	C9	1½" NPT
C6	C8	C0	1½" S.W.
P3	P4	P5	1½" flanged
D5	D7	D9	2" NPT
D6	D8	D0	2" S.W.
Q3	Q4	Q5	2" flanged

LEVEL RANGE

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 6 [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

complete order code for Standard EZ Modulevel transmitter

TRANSMITTER TYPE AND MOUNTING

E	Electronic Integral Mount
G	Electronic Remote Mount
R	Electronic High-temp Integral Mount

TRANSMITTER OUTPUT

Z	4-20 mA only (Analog), 24 Vdc, 120 Vac or 240 Vac
S	4-20 mA with HART (Digital) ①, 24 Vdc only

① HART communicator sold separately

TRANSMITTER CONFIGURATION AND ACCESSORIES

	Code	Display	Input Voltage	Agency Approval
Integral Mount Fourth Digits 1, 2, 3 only Eighth Digit E only +400° F max.	A	None	24 Vdc	EP – FM, CSA, CENELEC
	B	None	120 Vac ②	EP – FM, CSA
	C	None	240 Vac ②	EP – FM, CSA
	D	None	24 Vdc	IS/NI – FM, CSA, CENELEC
	G	Analog	24 Vdc	EP – FM, CSA, CENELEC
	I	Analog	24 Vdc	IS/NI – FM, CSA, CENELEC
	L	Analog	120 Vac ②	EP – FM, CSA
	N	Analog	240 Vac ②	EP – FM, CSA
	J	Digital ③	24 Vdc	IS/NI – FM, CSA, CENELEC
	9	Digital ③	24 Vdc	EP – FM, CSA, CENELEC
Remote Mount Fourth Digits 7, 8, 9 only Eighth Digit G only +500° F max.	H	None	24 Vdc	EP – FM, CSA
	2	None	120 Vac ②	EP – FM, CSA
	3	None	240 Vac ②	EP – FM, CSA
	K	Analog	24 Vdc	EP – FM, CSA
	5	Analog	120 Vac ②	EP – FM, CSA
	6	Analog	240 Vac ②	EP – FM, CSA
	7	Digital ③	24 Vdc	EP – FM, CSA
HT-Integral Mount Fourth Digits 7 ,8, 9 only Eighth Digit R only +600° F max.	Q	None	24 Vdc	IS/NI – FM, CSA, CENELEC
	W	None	24 Vdc	EP – FM, CSA, CENELEC
	T	Analog	24 Vdc	IS/NI – FM, CSA, CENELEC
	X	Analog	24 Vdc	EP – FM, CSA, CENELEC
	4	Digital ③	24 Vdc	EP – FM, CSA, CENELEC
	Z	Digital ③	24 Vdc	IS/NI – FM, CSA, CENELEC
Remote Mount Fourth Digits 7, 8, 9 only Eighth Digit G only +600° F max.	Q	None	24 Vdc	EP – FM, CSA
	R	None	120 Vac ②	EP – FM, CSA
	S	None	240 Vac ②	EP – FM, CSA
	T	Analog	24 Vdc	EP – FM, CSA
	U	Analog	120 Vac ②	EP – FM, CSA
	V	Analog	240 Vac ②	EP – FM, CSA
	4	Digital ③	24 Vdc	EP – FM, CSA

② 120 & 240 Vac available on Analog unit only (ninth digit Z)

③ Digital meter available on Digital Hart compatible unit only (ninth digit S)

☐ ☐ ☐ Last 3 Digits of Model Number

REMOTE CONNECTING CABLE

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

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

MODEL NUMBER

DESIGN TYPE

E 5	Standard design EZ Modulevel

MOUNTING AND CHAMBER MATERIALS

flanged top ①	cage side/bottom	cage side/side	tank connection with steel chamber material
1	3	5	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"

SPECIFIC GRAVITY AND PROCESS TEMPERATURE

integral	remote	HT integral or remote	transmitter mounting
+400° F (+200° C)	+500° F (+290° C)	+600° F (+315° C)	maximum temperature
2	8	8	0.55 - 1.09 specific gravity

TANK CONNECTION

Top mounted connection type

ANSI HEAD Flange rating			
RF 900 lbs	RF 1500 lbs	RF 2500 lbs	Size
H6	H7	H8	4"
K6	K7	K8	6"

External cage models

ANSI Cage rating			
RF 900 lbs	RF 1500 lbs	RF 2500 lbs	Size / Type
L5	L7	L9	1½" NPT
M5	M7	M9	1½" S.W.
P6	P7	P8	1½" flanged
L6	L8	L0	2" NPT
M6	M8	M0	2" S.W.
Q6	Q7	Q8	2" flanged

LEVEL RANGE

14 356	32 813	48 1219	60 1524	inches mm
A	B	C	D	code

TRANSMITTER – ELECTRONICS (see opposite page)

E 5 [ ] [ ] [ ] [ ] [ ] [ ] [ ]

complete order code for Standard EZ Modulevel transmitter

TRANSMITTER TYPE AND MOUNTING

E	Electronic Integral Mount
G	Electronic Remote Mount
R	Electronic High-temp Integral Mount

TRANSMITTER OUTPUT

Z	4-20 mA only (Analog), 24 Vdc, 120 Vac or 240 Vac
S	4-20 mA with HART (Digital) ①, 24 Vdc only

① HART communicator sold separately

TRANSMITTER CONFIGURATION AND ACCESSORIES

	Code	Display	Input Voltage	Agency Approval
Integral Mount Fourth Digit 2 only Eighth Digit E only +400° F max.	A	None	24 Vdc	EP – FM, CSA, CENELEC
	B	None	120 Vac ②	EP – FM, CSA
	C	None	240 Vac ②	EP – FM, CSA
	D	None	24 Vdc	IS/NI – FM, CSA, CENELEC
	G	Analog	24 Vdc	EP – FM, CSA, CENELEC
	I	Analog	24 Vdc	IS/NI – FM, CSA, CENELEC
	L	Analog	120 Vac ②	EP – FM, CSA
	N	Analog	240 Vac ②	EP – FM, CSA
	J	Digital ③	24 Vdc	IS/NI – FM, CSA, CENELEC
	9	Digital ③	24 Vdc	EP – FM, CSA, CENELEC
Remote Mount Fourth Digit 8 only Eighth Digit G only +500° F max.	H	None	24 Vdc	EP – FM, CSA
	2	None	120 Vac ②	EP – FM, CSA
	3	None	240 Vac ②	EP – FM, CSA
	K	Analog	24 Vdc	EP – FM, CSA
	5	Analog	120 Vac ②	EP – FM, CSA
	6	Analog	240 Vac ②	EP – FM, CSA
	7	Digital ③	24 Vdc	EP – FM, CSA
HT-Integral Mount Fourth Digit 8 only Eighth Digit R only +600° F max.	Q	None	24 Vdc	IS/NI – FM, CSA, CENELEC
	W	None	24 Vdc	EP – FM, CSA, CENELEC
	T	Analog	24 Vdc	IS/NI – FM, CSA, CENELEC
	X	Analog	24 Vdc	EP – FM, CSA, CENELEC
	4	Digital ③	24 Vdc	EP – FM, CSA, CENELEC
	Z	Digital ③	24 Vdc	IS/NI – FM, CSA, CENELEC
Remote Mount Fourth Digit 8 only Eighth Digit G only +600° F max.	Q	None	24 Vdc	EP – FM, CSA
	R	None	120 Vac ②	EP – FM, CSA
	S	None	240 Vac ②	EP – FM, CSA
	T	Analog	24 Vdc	EP – FM, CSA
	U	Analog	120 Vac ②	EP – FM, CSA
	V	Analog	240 Vac ②	EP – FM, CSA
	4	Digital ③	24 Vdc	EP – FM, CSA

② 120 & 240 Vac available on Analog unit only (ninth digit Z)

③ Digital meter available on Digital Hart compatible unit only (ninth digit S)

☐ ☐ ☐ Last 3 Digits of Model Number

REMOTE CONNECTING CABLE

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

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QUALITY

MAGNETROL
REGISTERED TO
ISO 9001
Your Assurance of
Quality and Service

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

Expedite
Ship
Plan

Several Electronic Modulevel 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

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.

Magnetrol

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