

ELECTRONIC LEVEL SWITCH MODEL ES, EL & EV

APPLICATIONS:

Senses a specific liquid level and produces electric output.
High or low level control.
Electric output can activate alarms, solenoid valves or other electrically switched devices.

FEATURES:

316 SS Wetted Parts
Sealed Hermetic Reed Switch
SPDT Reed Switch
CSA Certificate #1662451, USA and Canada
Expl. Proof – Class I, Div 1, Groups A,B,C,D
• Class II, Groups E,F,G, Class III
• Class I, Zone 1, AExdIIC, ExdIIC
• (Stainless steel float only)
• Additional seal not required
NEMA4X
Available with manual override for testing.
Minimum Specific Gravity 0.4.

CERTIFICATIONS:

NACE MR0175 compliant Wetted Parts
• documents available upon request, specify when ordering
Canadian Registration Number (CRN):
0H11305.2134567890NTY

Kimray is an ISO 9001- certified manufacturer.

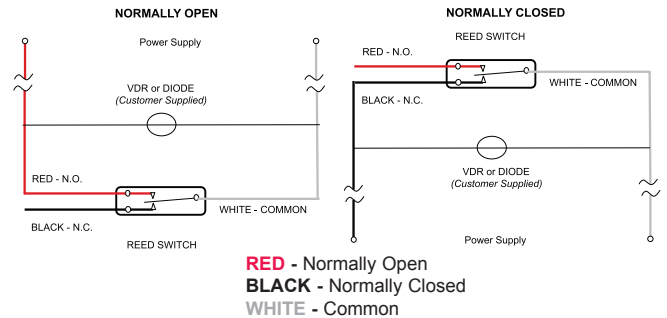
ELECTRICAL RATINGS:

STD POWER: 3W MIN, 100W MAX
0.83A @ 120VAC
2A @ 50VDC
3A MAXIMUM
LOW POWER : 25W MAX
0.2A @ 120VAC
1A @ 25VDC
1A MAXIMUM

WIRING INSTRUCTIONS:

Do not exceed the amperage and voltage for the switch.
Switch contacts may experience damage in applications using relays, motors, etc. where a power surge or voltage spike may occur during relay engagement or motor startups. For these conditions a shunt path for over-voltage should be installed.

- For DC applications:
use an (1N4001) or similar diode wired in parallel as shown.
- For AC applications:
use a 110 VAC Varistor (Digi-Key BC1408-ND) or similar wired in parallel as shown.



Standard Configuration Code †	Order Code	Line Size	Connection Type	Temp Range	Max. W.P. †† psig	Float	Override	Power
FES1S4NSAS	CEB1	1 1/2"	NPT	-40F - 350F	2000	SS6	No	Standard
FES2S4NSAS	CEC1	2"					No	
FES1S4WSAS	CEB2	1 1/2"					Yes	
FES2S4WSAS	CEC2	2"					Yes	
FES1S4NPAS	CEB1PP	1 1/2"		-40F - 200F	5000	HDPE	No	
FES2S4NPAS	CEC1PP	2"					No	
FES1S4WPAS	CEB2PP	1 1/2"					Yes	
FES2S4WPAS	CEC2PP	2"					Yes	
FEV2S4NSAS	CEC1VRT	2"		-40F - 350F	2000	SS6	No	Low PWR
FEV2S4WSAS	CEC2VRT	2"					Yes	
FEL1S4NSAS	CEB1LPW	1 1/2"					No	
FEL2S4NSAS	CEC1LPW	2"					No	
FEL1S4WSAS	CEB2LPW	1 1/2"		Yes				
FEL2S4WSAS	CEC2LPW	2"		Yes				
FEL1S4NPAS	CEB1LPWPP	1 1/2"		-40F - 200F	5000	HDPE	No	
FEL2S4NPAS	CEC1LPWPP	2"					No	
FEL1S4WPAS	CEB2LPWPP	1 1/2"	2000		Yes			
FEL2S4WPAS	CEC2LPWPP	2"			Yes			

NOTES:

For standard & optional seals, metals, material specifications & dimensions see technical data on pages 08:I - 08:VII

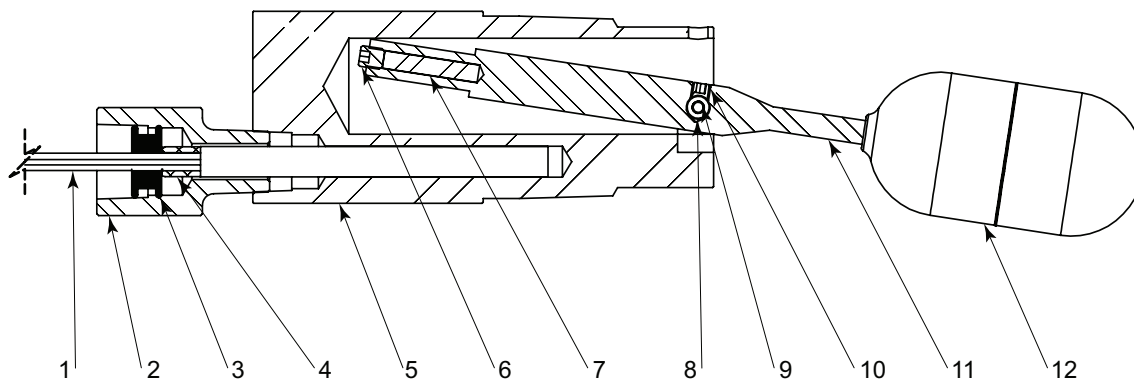
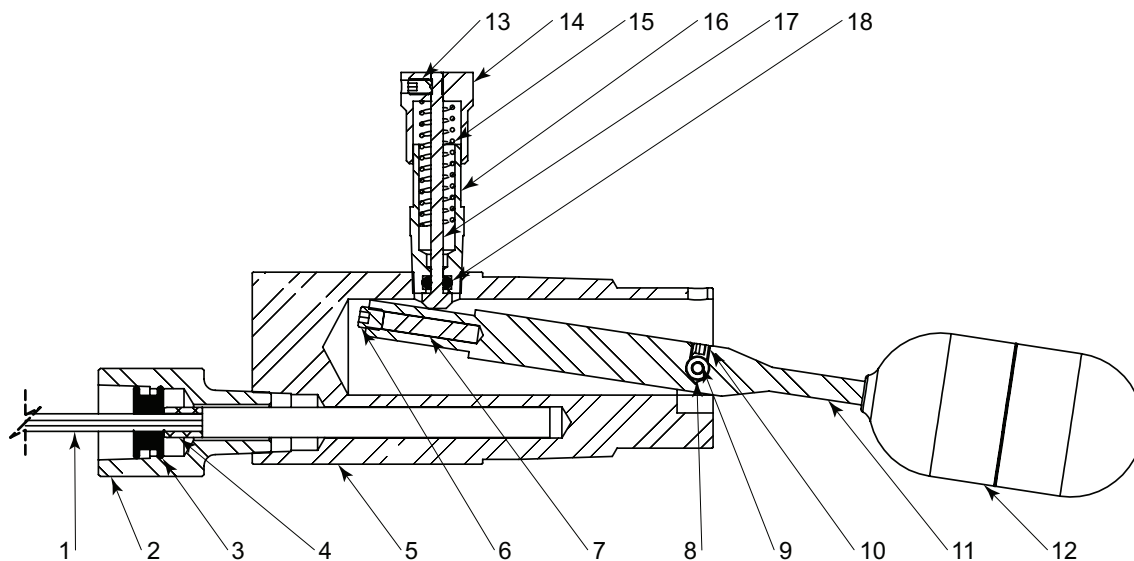
† For code builder see page 08:00.3

†† Max W.P. values based on -20°F to 100°F.

FLOAT OPERATED CONTROLLERS

ELECTRIC LEVEL SWITCH (HORIZONTAL) MODEL ES & EL PARTS DRAWING & LIST

KIMRAY
INC.®



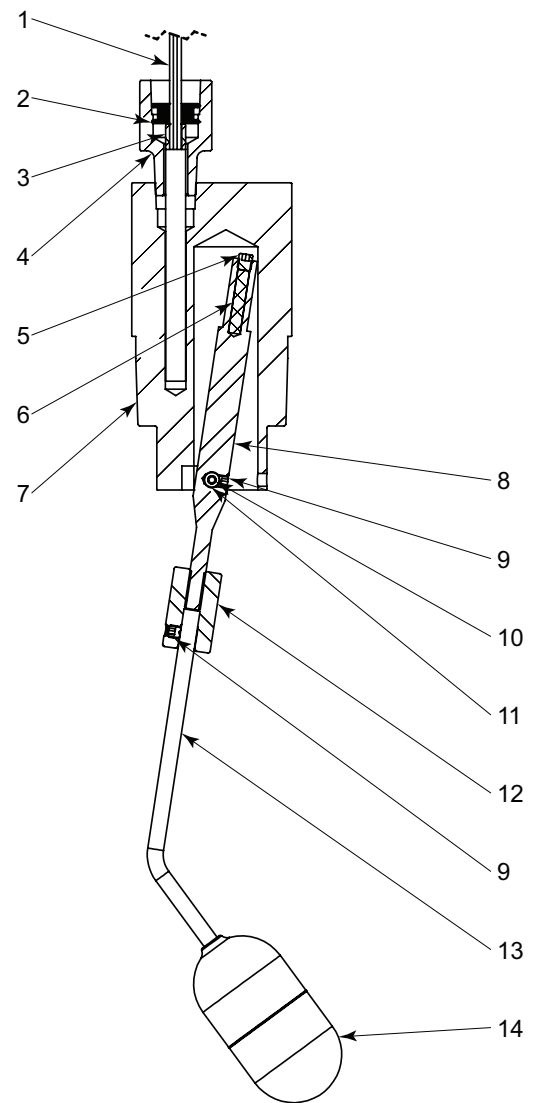
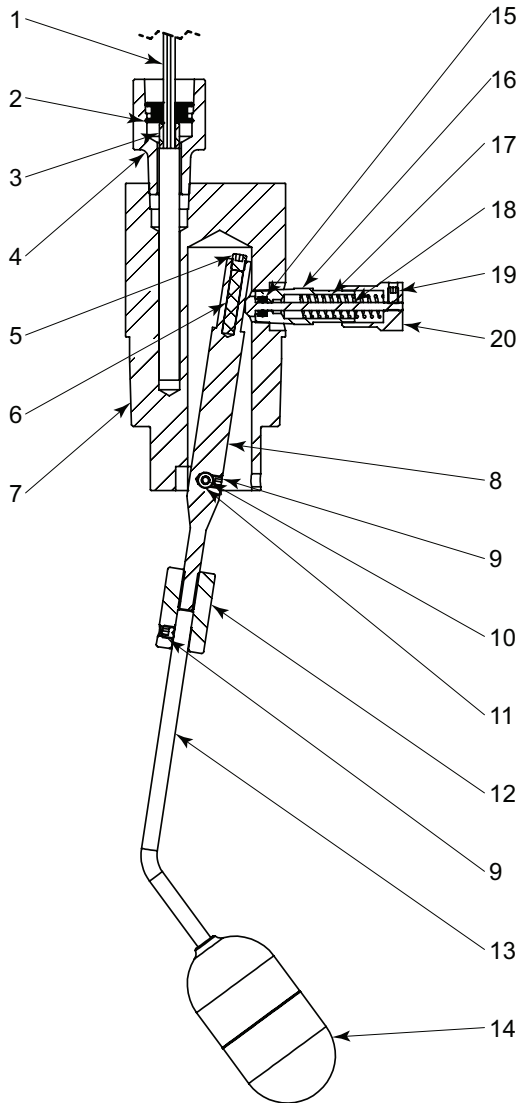
ITEM	QTY.	DESCRIPTION	PART NO.
1	1	Switch Cartridge	Standard 5413 Low Power 5413R
2	1	Conduit Adaptor	5414
3	1	Grommet	5424
4	1	Grommet Insert	5423
5	1	1 1/2" Body (with override)	5421
		2" Body (with override)	5433
		1 1/2" Body (no override)	5425
		2" Body (no override)	5434
6	1	Set Screw	5593
7	1	Magnet	3206
8	2	Lever Spacer	5416
9	1	Lever Pin (1 1/2" Body)	5415
		Lever Pin (2" Body)	5432
10	1	Set Screw	2446
11	1	Float Lever	5420
12	1	SS6 Float	3216
		Poly Float	5431

OPTIONAL MANUAL OVERRIDE			
ITEM	QTY.	DESCRIPTION	PART NO.
13	1	Set Screw	5426
14	1	Push Cap	5417
15	1	Spring	5429
16	1	Override Fitting	5418
17	1	Stem	5419
18	1	O-Ring	5410V

ACCESSORIES	
DESCRIPTION	PART NO.
Manual Override Assembly	5418A
Pull Assembly w/20' Cable	5587A
Annulus Plug	5594

All Pictures shown are for illustration purpose only. Actual product may vary due to product enhancement.

ELECTRIC LEVEL SWITCH (VERTICAL) MODEL EV PARTS DRAWING & LIST



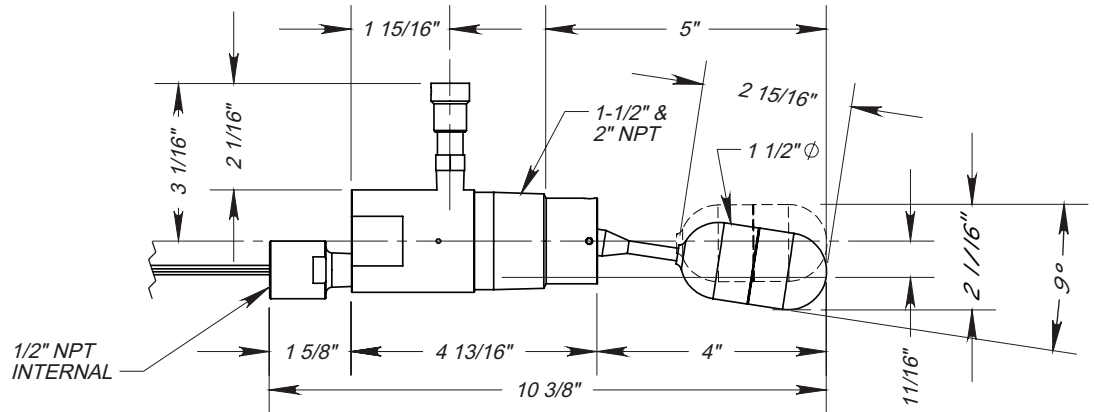
ITEM	QTY.	DESCRIPTION	PART NO.
1	1	Switch Cartridge	5413
4	1	Conduit Adaptor	5414
2	1	Grommet	5424
3	1	Grommet Insert	5423
7	1	1 1/2" Body (with override)	5421
		2" Body (with override)	5433
		1 1/2" Body (no override)	5425
		2" Body (no override)	5434
5	1	Set Screw	5593
6	1	Magnet	3206
11	2	Lever Spacer	5416
10	1	Lever Pin (1 1/2" Body)	5415
		Lever Pin (2" Body)	5432
9	2	Set Screw	2446
8	1	Float Lever	5420
12	1	Coupling	7467
13	1	Extension	7466
14	1	SS6 Float	3216
		Poly Float	5431

OPTIONAL MANUAL OVERRIDE			
ITEM	QTY.	DESCRIPTION	PART NO.
15	1	O-Ring	5410V
16	1	Override Fitting	5418
17	1	Spring	5429
18	1	Stem	5419
19	1	Set Screw	5426
20	1	Push Cap	5417

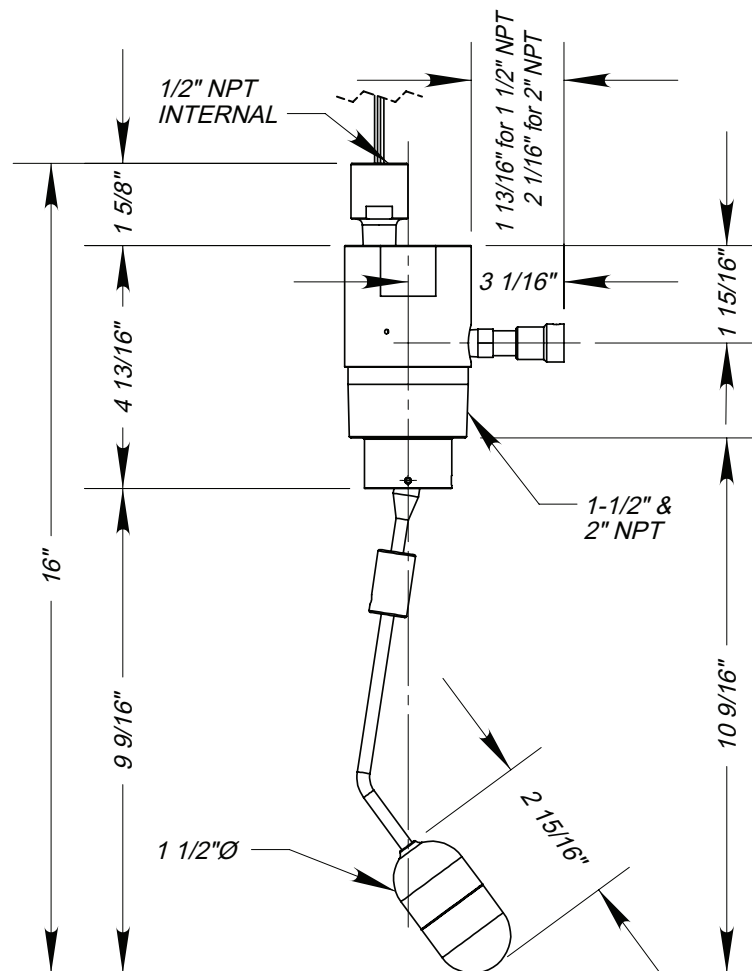
ACCESSORIES	
DESCRIPTION	PART NO.
Manual Override Assembly	5418A
Annulus Plug	5594

All Pictures shown are for illustration purpose only. Actual product may vary due to product enhancement.

HORIZONTAL



VERTICAL



All Pictures shown are for illustration purpose only. Actual product may vary due to product enhancement.

Table 1 - GEN 3 Seal Options

Product Type	Part	Standard Material	Optional Material
Pneumatic	Mounting Piece	FKM	AFLAS®, HSN,
	Pilot Seals	FKM	N/A

Table 2 - Level Switch Seal Options

Product Type	Part	Standard Material	Optional Material
Electric Switch	O-rings	FKM	AFLAS®, HSN
Pneumatic Switch	O-rings	FKM	N/A
	Diaphragm	FKM	LTN

Table 3 - Seal Specifications

		NITRILE	LOW TEMP NITRILE	HIGHLY SATURATED NITRILE	FKM	AFLAS®
	Kimray Suffix	-	LTN	HSN	V	AF
Resistance	Abrasion	G	G	G-E	G	G
	Acid	F	F	G-E	G-E	E
	Chemical	F	F	F	E	E
	Cold	G	E	G	P	P
	Flame	P	P	P	E	E
	Heat	G	G	E	E	E
	Oil	G-E	G-E	E	E	E
	Ozone	P	P	G	G-E	E
	Set	G	G	G	G-E	P
	Tear	F	F	F	F	P
	Water/Steam	F	F	E	P	G
	Weather	F	F	G	E	E
	CO2	F-G	F-G	G	G	G
	H2S	P	P	F	P	E
	Methanol	F	P	E	P	P
Properties	Dynamic	G	G	G	G	G
	Electrical	F	F	F	F	G-E
	Impermeability	G	G	G	G	G
	Tensile Strength	G	G	G-E	G	F
RATINGS: P-POOR, F-FAIR, G-GOOD, E-EXCELLENT						

Table 4 - Material Options			
	Component	Standard Material	Optional Material
Pneumatic GEN3 Level Controllers	Body	Steel (ASTM SA352LCB)	N/A
	Pilot	Aluminum (ASTM B221 6061-T6)	N/A
	Shaft & Bearing Hubs	Steel (ASTM)	316SS (ASTM A240)
	Bearings	Polyimide filled PTFE	N/A
	Levers	Steel (FLN2C-4005)	N/A
	Displacer	PVC	316SS (ASTM A 240)
	Spring	17-7SS (ASTM A313)	N/A
Pneumatic Level Switches	Body	Aluminum (ASTM B221 6061-T6)	N/A
	Float	316SS (ASTM A 240)	HDPE (ASTM D4976)
External Float Cages	Electronic & Pneumatic Level Switch Float Cage	Steel (ASTM SA352LCB)	316SS (ASTM A351 CF8M)
	Horizontal GEN II Float Cage	ASTM A-106 GR. B	N/A
	Vertical External GEN II Float Cage	SA-106B, SA-234 WPB, SA-516-70	N/A

Series:

F = Float Operated Controllers

Model:

PS = Pneumatic Level Switch
PK = Pneumatic Level Switch w/o Relay
PX = Pneumatic Extended Level Switch
ES = Electric Level Switch
EL = Electric Level Switch Low power
EV = Electric Level Switch Vertical Float

Connection Size:

1 = 1 1/2 NPS (ES, EL & EV only)
2 = 2 NPS

End Connection:

S4 = MNPT

Override:

W = With manual Override
N = Without Manual Override

Float Type:

P = Poly - 5000 psi (ES, EL & EV only)
S = 316SS - 2000 psi

Float Extensions:

A = None

Service Type:

S = Standard

F	PS	2	S4	W	P	A	S	
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Options: Additional cost and lead times will apply
If multiple options required input in sequential order
Leave blank if no options required

1 = NACE Certification
2 = Hydrostatic Test Certification
3 = MTR (Shell Components)
A = AFLAS Elastomers
H = HSN Elastomer
X = Export (Hydrostatic test, MTR & 3.1)

Not all selections available on all products listed.
See product pages 08:50.1 - 08:60.3 for available options