



## MAGNETIC FLOWMETERS FOR EVERY INDUSTRIAL APPLICATION

Full bore magnetic flowmeters have no internal moving parts or obstructions to cause pressure drops across the meter or require maintenance for cleaning or repair. They can be supplied with either integral or remote mounted convertors with IP65 protection as standard. Explosion proof, IP67 or IP68 enclosures are optional. They are available with AC or DC power options. A variety of liner, electrode & construction materials are available to build units for water, waste water, food & pharmaceutical applications as well as units for the mining & mineral processing industries for the handling of slurries & corrosive fluids.



### FLANGE METER WITH INTEGRAL CONVERTOR

- Pipe diameters DN3 to DN3000
- Minimum conductivity of process fluid 5  $\mu\text{S}/\text{cm}$
- Measures flow velocities from 0.2 to 15 m/sec
- Accuracy, standard  $\pm 0.5\%$ . Optional  $\pm 0.3\%$  or  $\pm 0.2\%$

### WAFER METER.

- Economical installation for smaller pipe diameters.
- Pipe diameters DN 10 to DN 200
- Minimum Conductivity of process fluid 5  $\mu\text{S}/\text{cm}$ .
- Measures flow velocities from 0.2 to 15 m/sec.
- Accuracy, standard  $\pm 0.5\%$ . Optional  $\pm 0.3\%$  or  $\pm 0.2\%$



### REMOTE MOUNTED CONVERTOR.

- Ideal for flowmeters mounted in pits liable to flood.
- Power supply 85—250V, 45—63 Hz, single phase.
- Or nominal 24VDC supply, range 20—36 VDC.
- Power consumption including sensor, 20 Watts.
- Ambient temperature operating range,  $-10$ — $+60^\circ\text{C}$
- Relative humidity: 5% - 90%.



#### INSERTION MAGNETIC FLOW METER.

- Low cost installation for larger pipe sizes.
- Easily moved from one installation to another.
- Suitable for pipe diameters DN100 to DN3000.
- Integral converters or remote mount.
- Minimum flow velocity 0.5 m/s

#### COMPACT BATTERY POWERED MAGNETIC FLOW METER

- Minimum process fluid conductivity 20us/cm.
- Suitable for pipe diameters DN10—DN800.
- Battery life up to 200 months depending on operating conditions.



#### TRI CLOVER CLAMP SANITARY METER

- Suitable for pipe diameters DN10 to DN200.
- Minimum conductivity 5us/cm.
- 304 or 316 stainless steel, various liner materials.
- Wafer style available in sanitary build.





## Specification

Medium Conductivity: > 5us/cm  
 Size: DN3-3000  
 Measuring Range: 0.2-15m/s max  
 Measuring Tube material: Stainless Steel 304  
 Flange material: Carbon steel(standard)/Stainless Steel 304/316(optional)  
 Coil Housing: Carbon steel(standard)/Stainless Steel 304/316(optional)  
 Nominal Pressure: 0.6Mpa/1.0Mpa/1.6Mpa/2.5Mpa/4.0Mpa/Customized  
 Liner: PTFE/Neoprene/Hard Rubber/F46/PFA/Polyurethane  
 Electrode&Grounding: SS316L/Hastelloy B/Hastelloy C/Titanium/Tantalum/Platinum  
 Process Connection: Flange  
 Flange type: JIS/ANSI/DIN or other customized  
 Ambient Temperature: -25 to +60 oC  
 Accuracy: ±0.5%(standard); ±0.3%/±0.2%(Customized)  
 Power supply: AC85-250V/DC20-36V  
 Output: 4-20mA, Pulse, RS485 Modbus(standard)/HART, Profibus(optional)  
 Alarm: Empty Pipe, Excitation, Upper & Lower Limit  
 Display: Three lines  
 Cable Entry: M20\*1.5(standard); 1/2"NPT(optional)  
 Ex-proof: Exmd II T4  
 Protection: IP65(standard)/IP67 IP68(optional)

## MODEL SELECTION CHART FOR POWERED MAGNETIC FLOW METERS

Selection										
QTLD	XXX	X	X	X	X	X	X	X	X	X
Caliber (mm)	DN10-DN3000 Reference Code, please check caliber code table 13									
Nominal Pressure	0.6Mpa	1								
	1.0Mpa	2								
	1.6Mpa	3								
	2.5Mpa	5								
	4.0Mpa	5								
	Others	6								
Connection	Flange	1								
	Wafer	2								
	Tri-clamp(Sanitary)	3								
	Thread	4								
	Others	5								
Liner Material	PTFE	1								
	Neoprene	2								
	Hard Rubber	3								
	PFA	4								
	FEP	5								
	Polyurethane	6								
	Others	7								
Electrode Material	SUS316L	1								
	Hastelloy B	2								
	Hastelloy C	3								
	Titanium	4								
	Tantalum	5								
	Platinum-iridium	6								
	Others	7								
Structure Type	Compact/Integral					1				
	Remote					2				
Power Supply	AC220V						A			
	DC24V						D			
	3.6V Lithium Battery						E			
	Others						G			
Output Signal	4-20mA/Pulse, RS485							A		
	4-20mA, HART							B		
	Others							C		
Ex-proof	Without Ex-proof								0	
	With Ex-proof								1	
Process Connection	DIN PN10									1
	DIN PN16									2
	DIN PN25									3
	DIN PN40									4
	ANSI 150#							A		
	ANSI 300#							B		
	ANSI 600#							C		
	JIS 10K							D		
	JIS 20K							E		
	JIS 40K							F		
	Others							G		

Optional Selection	
	X
1	Grounding Ring
2	Matched Flange
3	Entrance Protection Flange
4	Scraper Type Electrode
5	Others

Table 13 Caliber Code Table	
Caliber	Code
10	100
15	150
20	200
25	250
32	320
40	400
50	500
65	650
80	800
100	101
125	125
150	151
200	201
250	251
300	301
350	351
400	401
450	451
500	501
600	601
700	701
800	801
900	901
1000	102
1100	112
1200	122
1400	142
1500	152
1600	162
1800	182
2000	202
2200	222
2400	242
2600	262
2800	282
3000	302

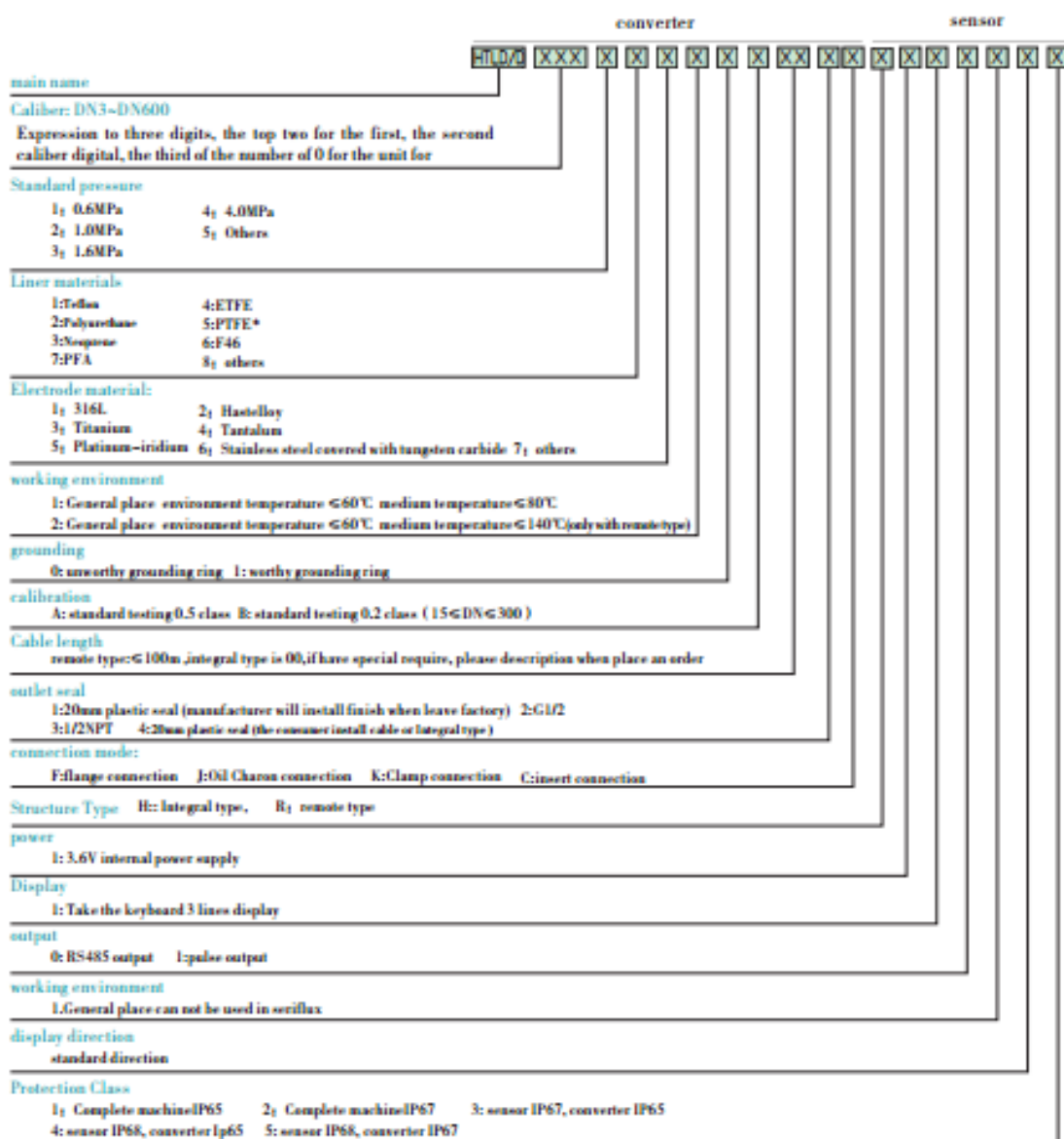


## BATTERY POWERED MAGNETIC FLOW METER SELECTION CHART



## SPECIFICATIONS

- Working temperature: -20 °C -50 °C
- Operating humidity:  $\leq 95\%$
- Protection class: IP68
- Flow rate measuring range: 0 --- 15 m / s
- Medium conductivity: clean water  $> 20 \mu\text{s} / \text{cm}$
- For measuring diameter: DN10 --- DN800
- Supporting Accuracy class: 0.5
- Measurement parameters: instantaneous flow, instantaneous flow rate
- Record parameters: Flow cumulative total
- Detection and alarm parameters: Fluid empty pipe detection alarm, the excitation current detection alarm
- Scaled output signal: Unit volume flow pulse
- Communication: RS485 (modbus protocol), GPRS



Note: PTFE liner material of negative pressure ability is poor, such as existing in the pipeline has negative pressure, please consider using network type PFA or F46



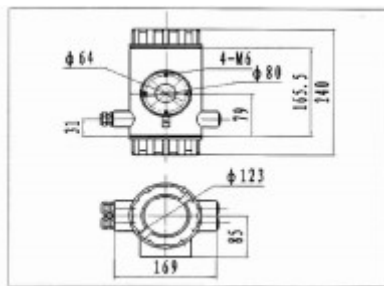


## CONVERTER FUNCTIONS

### INTEGRAL CONVERTER



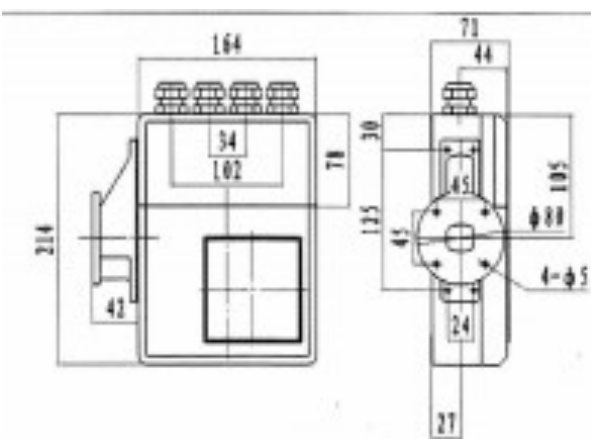
#### DIMENSIONS



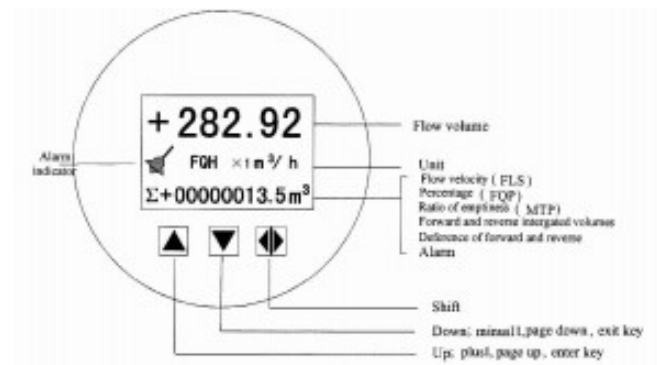
### REMOTE MOUNT CONVERTER



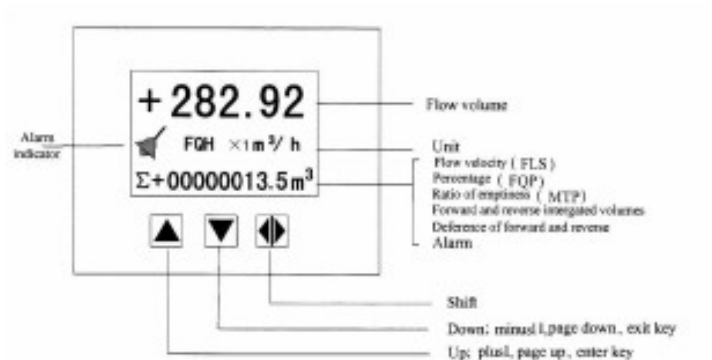
#### DIMENSIONS



### LCD DISPLAY & FUNCTIONS

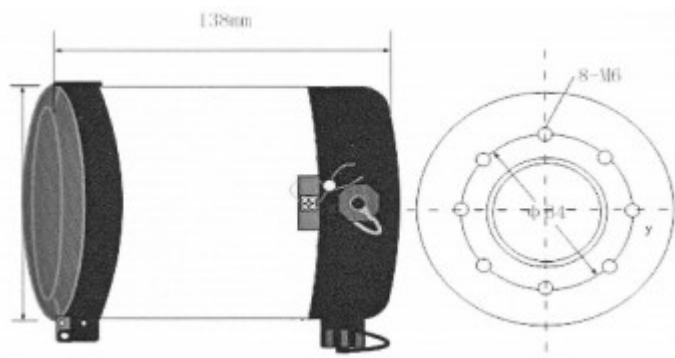
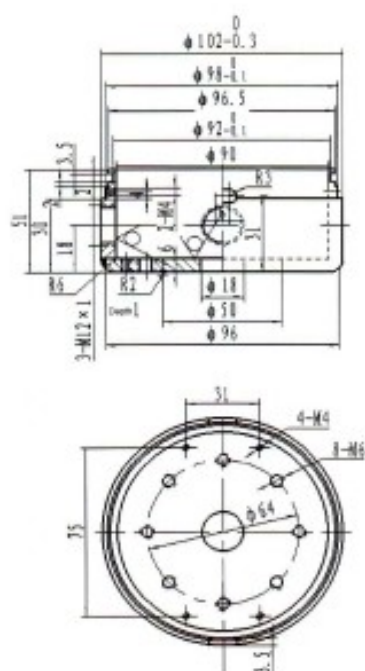


### LCD DISPLAY & FUNCTIONS





## BATTERY POWERED CONVERTOR FUNCTIONS



### Battery life(month)

Measuring cycle	50mA excitation	20mA excitation
30S	120	200
15S	60	100
14S	56	93
13S	52	86
12S	48	79
11S	44	73
10S	40	66
9S	36	59
8S	32	53
7S	28	46
6S	24	39
5S	20	33
4S	16	26
3S	12	19



## SELECTION GUIDE TO LINER MATERIALS

### TEFLON (PTFE)

- The most chemically resistant material, resistant to hot hydrochloric acid & nitric acid as well as strong alkali & organic solutions.
- Weak abrasion resistance.
- Temperature rating up to 120oC

### PFA

- Similar abrasion & chemical resistance to PTFE.
- More resistant to salt than PTFE, better for sea water applications.
- Suitable for high pressure applications.
- Merriman engineers can check chemical compatibility on request.

### F46

- Similar abrasion & chemical resistance to PTFE.
- Suitable for high pressure & vacuum applications.
- Temperature rating up to 160oC.

### NEOPRENE

- Good resistance to abrasion, has good elasticity & ductility.
- Resistant to weak acid & alkalis, but avoid oxidising chemicals such as sodium hypochlorite & ozone.
- Use in water & sewage treatment, mineral processing such as low abrasive slurries.

### POLYURETHANE

- Good abrasion resistance, use in abrasive slurries such as mineral processing & coal washeries.
- Poor resistance to chemical & organic impurities.



## SELECTION OF ELECTRODE MATERIALS

### **STAINLESS STEEL SUS316**

- General purpose material widely used in sewage , water treatment & pet-rochemicals.

### **STAINLESS STEEL COVERED WITH TUNGSTEN CARBIDE.**

- Enhanced abrasion resistance, compared to SUS316.

### **HASTELLOY B (HB)**

- Strong resistance to hydrochloric acid at any strength below 100oC.
- Resistant to sulphuric acid, phosphoric acid, hydrofluoric & other strong reducing acids.
- Good resistance to salt water.
- Should not be used with oxidising chemicals.

### **HASTELLOY C (HC)**

- Better performance than HB in oxidising chemicals including nitric acid.
- Good resistance to salt water.

### **TITANIUM**

- Good in sea water.
- Good in sodium hypochlorite.
- Good in oxidising acids such as fuming nitric, also organic acids & alkalis.
- Not resistant to reducing acids such as sulphuric & hydrochloric.

### **TANTALUM**

- Strong resistance to most corrosive & chemical mediums, similar to glass.
- Exceptions being, hydrofluoric acid, concentrated sulphuric acid, oleum & alkali solutions.

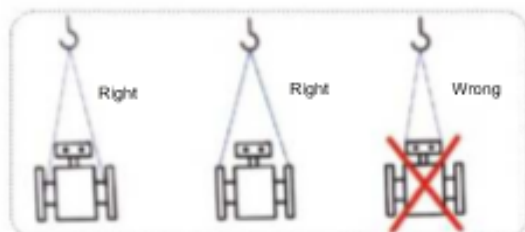
### **PLATINUM-IRIDIUM**

- Suitable for most chemical solutions except aqua fortis & ammonium salt.

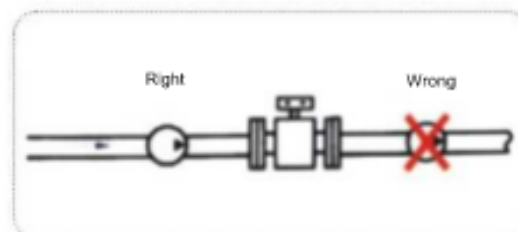


## INSTALLATION RECOMMENDATIONS.

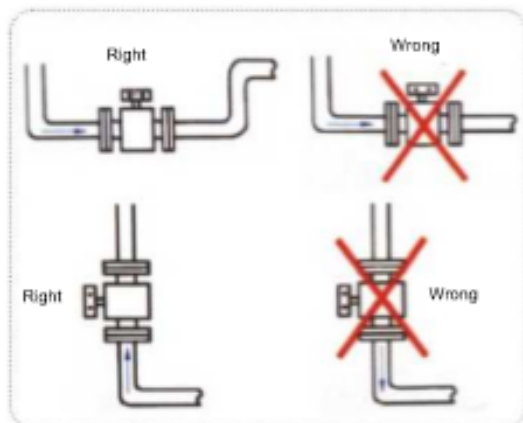
### PIPE MUST BE FULL OF MEDIUM



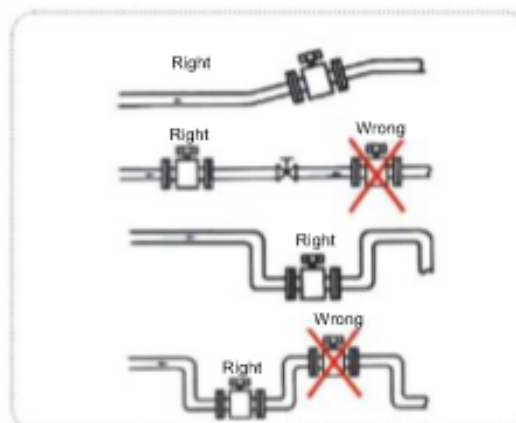
### INSTALLATION BEHIND A PUMP



### PIPE MUST BE FULL OF MEDIUM



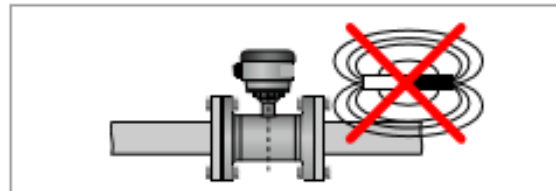
### AVOID AIR BLADDER



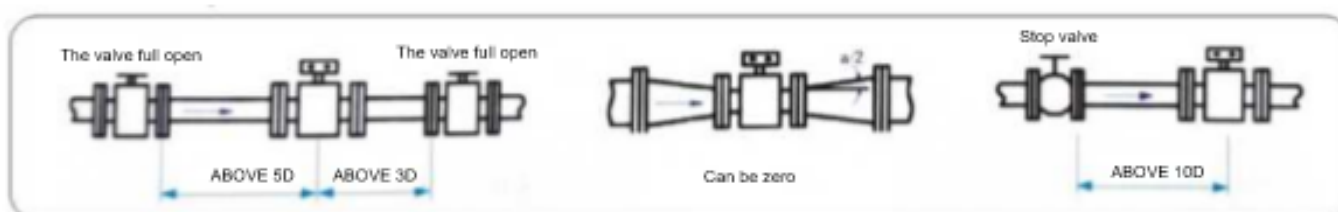
### AVOID VIBRATIONS



### AVOID MAGNETIC FIELD

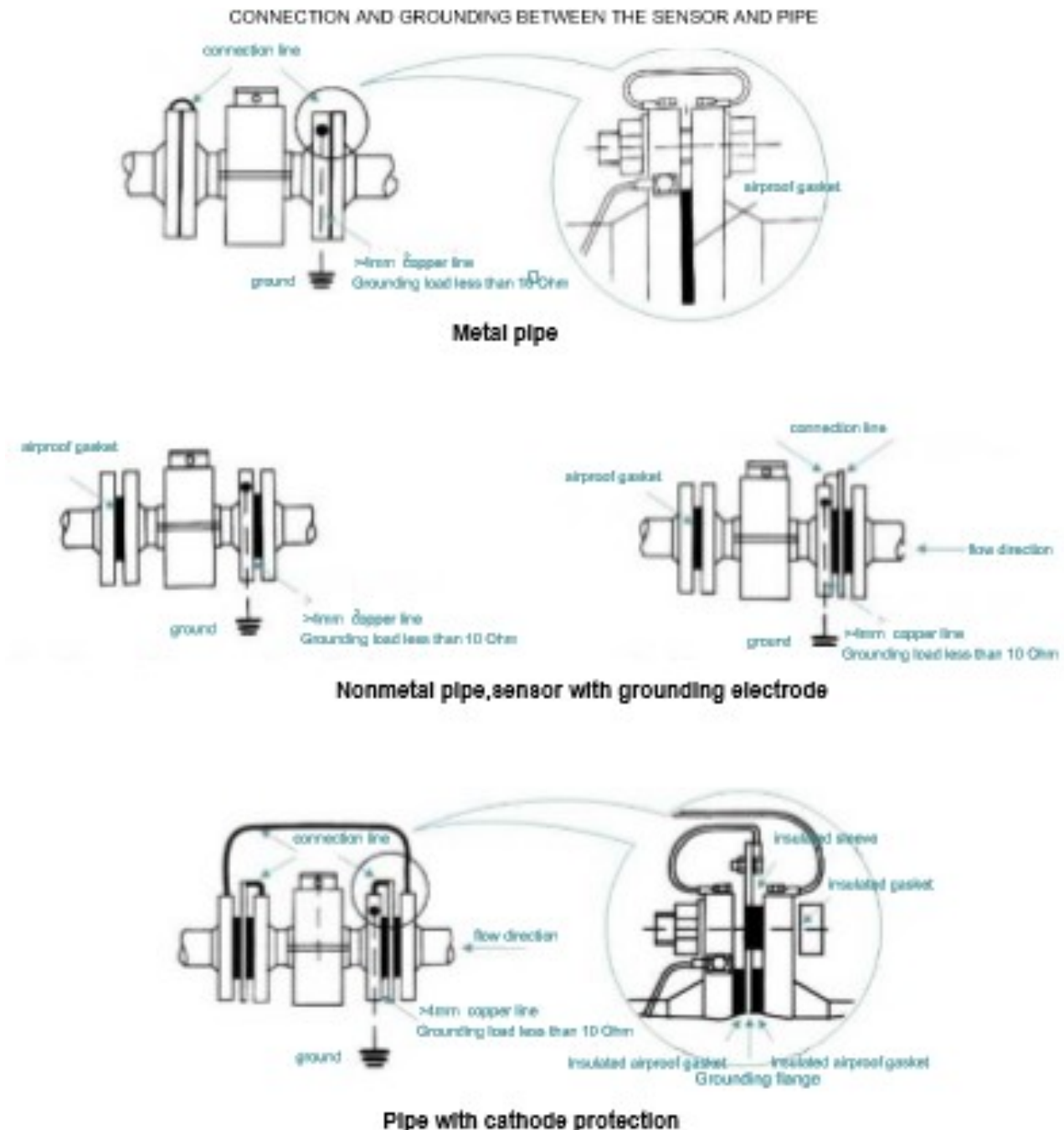


### STRAIGHT PIPE REQUIREMENT





## ELECTRICAL GROUNDING REQUIREMENTS.



These requirements are of great importance particularly with PVC pipe

**Merriman Controls.**

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