



---

# Positive Displacement Flowmeters

## OMP-1, 2 low pressure series instruction manual

### To the owner

---

Please take a few minutes to read through this manual before installing and operating your meter. Always retain this manual for future reference. If you have any problems with the meter, refer to the maintenance and trouble shooting sections of this manual.

This manual contains connection and operating instructions for the meters. If you need further assistance, contact your local representative or distributor for advice.

This Flowmeter has incorporated the

oval rotor principal into its design. This has proven to be a reliable and highly accurate method of measuring flow. Exceptional repeatability and high accuracy over a wide range of fluid viscosities and flow rates are features of the oval rotor design. Low pressure drop and high pressure rating means oval rotor flow meters are suitable for both gravity and pump (in-line) applications.

Flowmeters are available in either PPS (Polyphenylene Sulfide Resins) or 316



Stainless Steel. Standard rotors are made from 316 Stainless Steel with optional PPS rotors with Hastalloy C Shafts available.

## Operation

---



**PLEASE READ THIS INFORMATION CAREFULLY BEFORE USE!**

Before use, confirm the fluid to be used is compatible with the meter. Refer to Industry fluid compatibility charts or consult your local representative for advice.

To prevent damage from dirt or foreign

matter it is recommended that a Y or basket type 200 mesh strainer be installed as close as possible to the inlet side of the meter. Contact your local representative for advice.

**Note:**

To prevent damage to the meter slowly fill the system with fluid (this will prevent damage caused by air purge).

Failure to do this could damage the meter.

To reduce pressure build up, turn off the pump at the end of each day.

---

# Installation

---

1. Use thread sealant on all pipe threads.
2. Ensure the meter is installed so that

rotor shafts are always in a horizontal plane. Flow is bi-directional.

3. Flexible connections are recommended.
4. Extreme care must be taken when installing the meter. Pipe strain or overtightening meter connections can cause meter damage.

---

# Pulser details

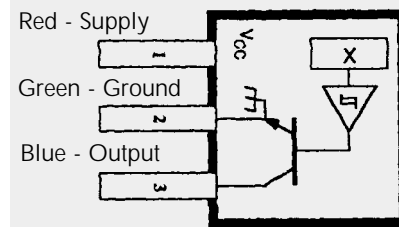
---

## Hall Effect Sensor (Standard):

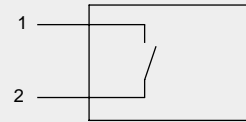
- \* 4.5V to 24V (4.6 ~ 9mA) operation needs only an unregulated supply.
- \* Open collector, 25mA output NPN (Current Sink), compatible with digital logic, internal pull-up resistor.
- \* Reverse battery protection.

## Reed Switch (Optional):

- \* Two wire, SPST, N/O.
- \* Switching voltage: max. 150VDC  
Maximum current: 0.25 AMPS.
- \* Rating 3 watts.
- \* Duty Cycle 20% on 80% off.



Hall Effect Sensor Wiring Details



Reed Switch Wiring Details

---

# Maintenance

---

## Disassembly:

1. Ensure the fluid supply to the meter has been disconnected, and the line pressure has been released before disassembly.
2. Remove four (4) screws and remove the meter body cover.
3. Remove the o-ring and inspect (replace o-ring if damaged).
4. Remove rotors, clean and inspect (replace rotors if damaged).

## Reassembly:

1. Place rotors into the meter body. The rotors should be at 90° to each other.
2. Lightly rotate the rotors by hand (they must rotate freely).
3. Install o-ring.
4. Replace the meter cap.

Note: The rotor with magnets must be placed in the body on the same side as the groove on the body (refer to diagram).

Note: The groove on the cover must line up with the groove on the meter body (refer to diagram).

5. Replace four screws.



**CAUTION:**  
Care must be taken not to overtighten the screws or damage may occur.

# Troubleshooting

TROUBLE SHOOTING GUIDE		
TROUBLE	CAUSE	REMEDY
Fluid will not flow through the meter	<ul style="list-style-type: none"> <li>A] Foreign matter blocking rotors</li> <li>B] Line strainer blocked</li> <li>C] Damaged rotors</li> <li>D] Meter connections over tightened</li> </ul>	<ul style="list-style-type: none"> <li>A] Dismantle meter, clean rotors. Strainer must be fitted in line.</li> <li>B] Clean strainer</li> <li>C] Replace rotors. Strainer must be fitted in line)</li> <li>D] Re-adjust connections</li> </ul>
Reduced flow through the meter	<ul style="list-style-type: none"> <li>A] Line strainer partially blocked</li> <li>B] Fluid is too viscous</li> </ul>	<ul style="list-style-type: none"> <li>A] Clean strainer</li> <li>B] Maximum viscosity 1000 centipoise</li> </ul>
Meter reading inaccurate	<ul style="list-style-type: none"> <li>A] Fluid flowrate is too low or too high</li> <li>B] Air in fluid</li> <li>C] Excess wear caused by incorrect installation</li> </ul>	<ul style="list-style-type: none"> <li>A] See specifications for min. and max. flowrates</li> <li>B] Bleed air from system</li> <li>C] Check meter body and rotors</li> </ul>
Meter not giving a pulse signal	<ul style="list-style-type: none"> <li>A] Faulty hall effect sensor or reed switch</li> <li>B] Faulty magnet</li> <li>C] Rotors installed in wrong position</li> </ul>	<ul style="list-style-type: none"> <li>A] Replace meter cap</li> <li>B] Replace rotors</li> <li>C] Refer to correct rotor positioning - assembly instructions.</li> </ul>

# Meter Specifications

<b>Meter Type</b>	Pulse Output
<b>Flow Ranges with liquids above 5 centipoise</b>	
OMP-1 Series	0.53 to 26 GPH
OMP-2 Series	4 to 132 GPH
<b>Accuracy of Reading</b>	+/- 1%
<b>Maximum Viscosity</b>	1000 Centipoise (higher possible w/reduced measuring range)
<b>Maximum Operating Pressure</b>	75 / 150 / 800 PSI (model dependant)
<b>Maximum Operating Temperature</b>	176°F w/Ryton Body, 250°F w/SS Body
<b>Pulse Type</b>	Hall Effect Sensor (std.) / Reed Switch (opt.)
<b>Pulses / US Gallon</b>	3785 for OMP-1, 1514 for OMP-2
<b>Meter Dimensions</b>	50 x 50mm / 1.97" x 1.97" (Meter Body) 2.56" (Port Face to Face)

# KOBOLD

---

## Positive displacement flowmeters OMP-1, 2 high pressure series instruction manual To the owner

---

Please take a few minutes to read through this manual before installing and operating your meter. Always retain this manual for future reference. If you have any problems with the meter, refer to the maintenance and trouble shooting sections of this manual.

This manual contains connection and operating instructions for the meters. If you need further assistance, contact your local representative or distributor for advice.

This Flowmeter has incorporated the oval rotor principal into its design. This

has proven to be a reliable and highly accurate method of measuring flow. Exceptional repeatability and high accuracy over a wide range of fluid viscosities and flow rates are features of the oval rotor design. With low pressure drop and high pressure rating means oval rotor flow meters are suitable for both gravity and pump (in-line) applications.

Flowmeters and rotors are manufactured in 316 Stainless Steel only.



## Operation

---



**PLEASE READ THIS INFORMATION  
CAREFULLY BEFORE USE!**

Before use, confirm the fluid to be used is compatible with the meter. Refer to Industry fluid compatibility charts or consult your local representative for advice.

To prevent damage from dirt or foreign matter it is recommended that a Y or basket type 200 mesh strainer be installed as close as possible to the inlet side of the meter. Contact your local representative for advice.

**Note:**

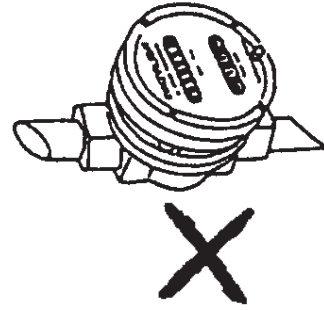
To prevent damage to the meter slowly

fill the system with fluid (this will prevent damage caused by air purge). Failure to do this could damage the meter.

To reduce pressure build up turn off the pump at the end of each day.

# Installation

1. Use thread sealant on all pipe threads.
2. Ensure the meter is installed so that rotor shafts are always in a horizontal plane. Flow is bi-directional.
3. The use of flexible connections is recommended.
4. Extreme care must be taken when installing the meter. Pipe strain or overtightening meter connections can cause meter damage.



DO NOT INSTALL METER THIS WAY

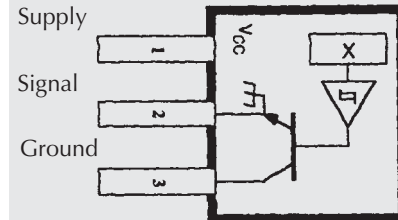
# Pulser details

## Hall Effect Sensor Specifications;

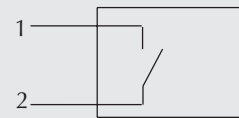
- \* 4.5V to 24V (4.6 ~ 9mA) operation needs only an unregulated supply.
- \* Open collector 25mA output NPN (Current Sink) compatible with digital logic.
- \* Reverse battery protection.

## Reed Relay Specifications;

- \* Two wire SPST N/O.
- \* Switching voltage 150VDC maximum current 0.25 AMPS.
- \* Rating 3 watts.
- \* Duty cycle 20% on 80% off.



Hall Effect Sensor Wiring Details (HP Models only)



Reed Switch Wiring Details (HP Models only)

# Maintenance

## Disassembly:

1. Ensure the fluid supply to the meter has been disconnected, and the line pressure has been released before disassembly.
2. Remove four (4) screws and remove the pulser cap.
3. Remove the gasket.
4. Remove eight (8) screws and remove the meter cap.
5. Remove o-ring and inspect (replace o-ring if damaged).
6. Remove rotors, clean and inspect (replace rotors if damaged).
7. To remove the PCB, remove the 2 screws. **Note: Reed switch PCB's cannot be removed.**

## Reassembly:

1. Place rotors into the meter body. The rotors should be at 90° to each other.

2. Lightly rotate the rotors by hand (they must rotate freely).
3. Install o-ring .
4. Replace the meter cap and tighten the 8 screws uniformly to 35Nm (25 Ft.lbs).
5. Replace the pulser cap and tighten the 4 screws .

# Troubleshooting

TROUBLE SHOOTING GUIDE		
TROUBLE	CAUSE	REMEDY
Fluid will not flow through the meter	A] Foreign matter blocking rotors B] Line strainer blocked C] Damaged rotors D] Meter connections over tightened	A] Dismantle meter, clean rotors. Strainer must be fitted in line. B] Clean strainer C] Replace rotors. Strainer must be fitted in line) D] Re-adjust connections
Reduced flow through the meter	A] Line strainer partially blocked B] Fluid is too viscous	A] Clean strainer B] Maximum viscosity 1000 centipoise
Meter reading inaccurate	A] Fluid flowrate is too low or too high B] Air in fluid C] Excess wear caused by incorrect installation	A] See specifications for min. and max. flowrates B] Bleed air from system C] Check meter body and rotors
Meter not giving a pulse signal	A] Faulty hall effect sensor or reed switch B] Faulty magnet C] Rotors installed in wrong position	A] Replace meter cap B] Replace rotors C] Refer to correct rotor positioning - assembly instructions.

# Meter Specifications

Meter Type	Pulse Output
Flow Ranges with liquids above 5 centipoise	
OMP-1 Series	0.53 to 26 GPH
OMP-2 Series	4 to 132 GPH
Accuracy of Reading	+/- 1%
Maximum Viscosity	1000 Centipoise (higher possible w/reduced measuring range)
Maximum Operating Pressure	8000 PSI
Maximum Operating Temperature	176°F w/Ryton Body, 250°F w/SS Body
Pulse Type	Hall Effect Sensor (std.) / Reed Switch (opt.)
Pulses / US Gallon	3785 for OMP-1, 1514 for OMP-2
Meter Dimensions	86mm Dia./ 3.4" Dia (Meter Body) 83mm / 3.25" (Port Face to Face)



---

## Positive Displacement Flowmeters

### OMP-1204 through OMP-1350 series instruction manual



OMP-xx04 thru OMP-xx50 Pulse • Standard LCD • From serial No. CXXXX

---

---

# To the owner

---

Thank you for purchasing a Kobold OMP Series Flow Meter. Please take a few minutes to read through this manual before installing and operating your meter. If you have any problems with the meter, refer to the maintenance and trouble shooting sections of this manual.

This manual contains connection and operating instructions for the OMP Series meters with pulse outputs and liquid crystal displays. For models with the mechanical register display, an

additional instruction manual is supplied. If you need further assistance, contact your local Kobold representative or contact Kobold by telephone or fax for advice.

The Kobold OMP Series Flow Meter has incorporated the oval rotor principal into its design. This has proven to be a reliable and highly accurate method of measuring flow. Exceptional repeatability and high accuracy over a wide range of fluid viscosities and flow rates are features of

the OMP Series flow meter design. The low pressure drop and high pressure rating means the OMP Series flow meter is suitable for both gravity and pump (in line) applications.

The Kobold OMP- Series flow meters are available in either aluminium or 316 stainless steel. Standard rotors are made from PPS (Polyphenylene Sulfide Resins) with optional 316 stainless steel rotors available for both stainless steel and aluminium models.

The OMP-xx04 thru OMP-xx50 Series is available with either:  
\* Standard Pulse, LC Display and Pulse  
\* Mechanical Totalizer

---

# Important Information

---



## PLEASE READ THIS INFORMATION CAREFULLY BEFORE USE!

Before use, confirm the fluid to be used is compatible with the meter or consult your local Kobold representative for advice.

This meter will handle particle sizes up to 0.25mm/0.011".

To prevent damage from dirt or foreign matter, Kobold recommends a Y or Basket type 60 mesh strainer be installed as close as possible to the inlet side of the meter (if required contact Kobold for further

information).

Note: When a strainer is installed it should be regularly inspected and cleaned. Failure to keep the strainer clean will dramatically effect flow meter performance.

To prevent damage to the meter slowly fill the system with fluid (this will prevent damage caused by air purge).

Note: Failure to do this could damage the meter.

For pump applications, turn off the pump at the end of each day.

Maintenance can be carried out to the liquid crystal display and pulse units without removing or isolating the meter from the line. When maintenance to any other part of the meter is required,

the meter must be isolated and the line pressure reduced.

The reed switch pulse unit can cause inaccurate rate counts when used with high speed counters. It is advised that a debounce circuit be used or alternatively use the hall effect sensor option.

---

# Installation

1] Kobold recommends that when setting up pipework for meter installations a bypass line be included in the design. This provides the facility for a meter to be removed for maintenance without interrupting production. (See Fig.1)

2] Use thread sealant on all pipe threads. For flanged versions w/ ANSI 150lb or DIN16, appropriate companion flanges and gaskets are required.

3] For pump applications ensure pipe work has the appropriate working pressure rating to match the pressure output of the pump. The maximum working pressures are;

Aluminium or stainless steel series with pulse, LCD: 800 PSI, mechanical: 500 PSI.

Flanged stainless steel or aluminium series. See appropriate ANSI/DIN flange rules

4] Install a wire mesh strainer (Y or basket type 60 mesh as close as possible to the inlet side of the meter.

5] Ensure that the meter is installed so that the flow of the liquid is in the direction of the arrows embossed on the meter body.

6] The meter can be installed in any orientation as long as the meter shafts are in a horizontal plane. (Refer to Fig.2 for correct installation) The register assembly may be orientated to suit the individual installation.

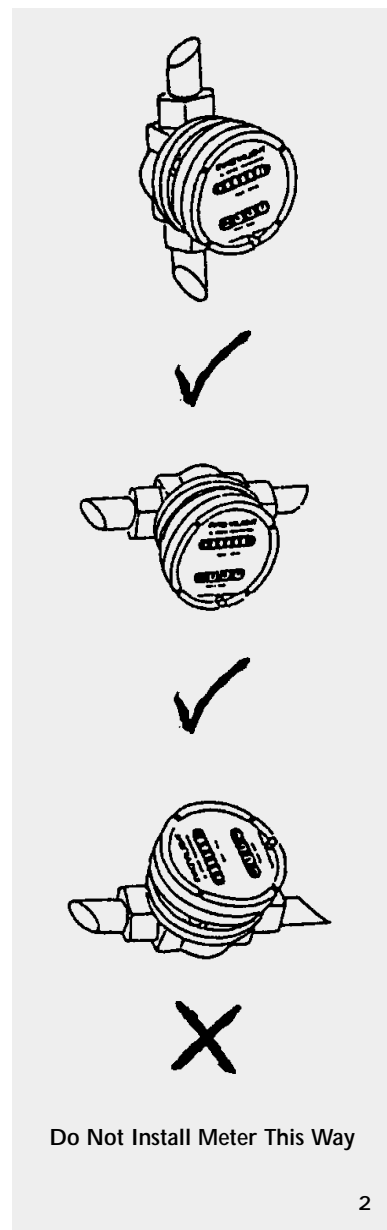
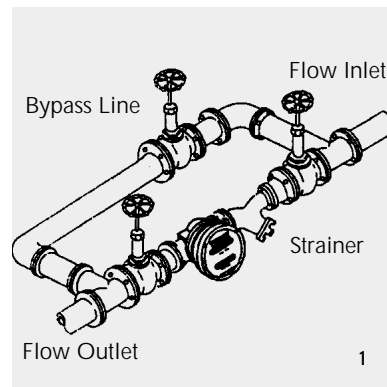
**Note: Incorrect installation can cause premature wear of meter components.**

7] Do not over tighten meter connections.

8] It is important that after initial installation you fill the line slowly, high speed air purge could cause damage to the rotors.

9] Test the system for leaks.

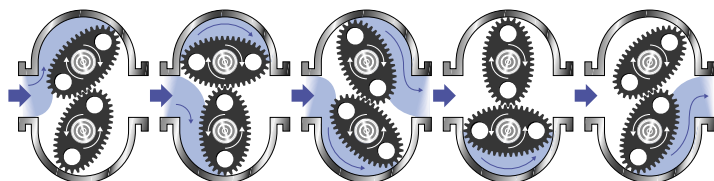
10] Check the strainer for swarf or foreign material, after the first 50 gallons check periodically, particularly if the flow rate decreases.



# Operation

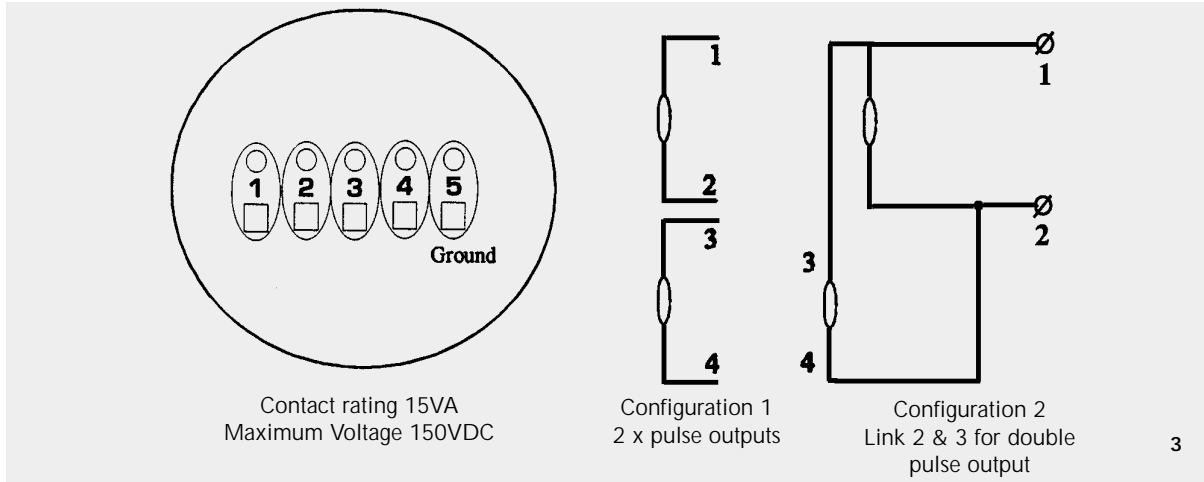
When fluid passes through the meter, rotors turn. The magnets which are located in the rotors will pass across the pulser circuit board (containing either Reed switches or Hall Effect

sensors). A signal is received which is then sent by the Pulse Circuit Board (PCB) to the relevant LC display or receiving instrument.

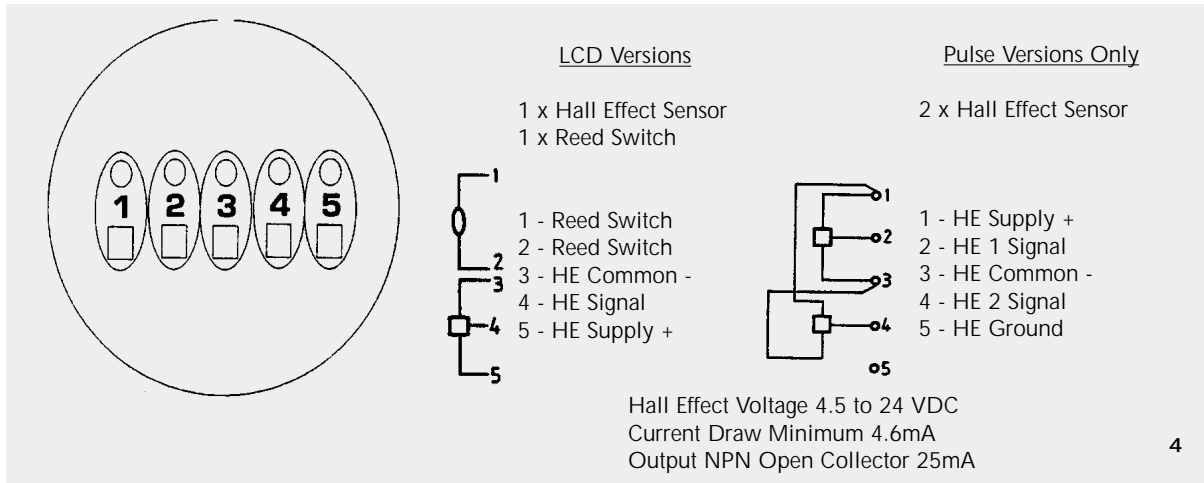


# Electrical Connections

Reed Switch Connections for PCB Terminals - refer Fig.3



Hall Effect Sensor Connections - refer Fig.4



# Service Instructions

## Disassembly

Ensure that the fluid supply to the meter is disconnected, and the line pressure is released before disassembly, with the exception for repair or maintenance to the LC

Display or PCB where there is no necessity to isolate the meter from flow. Refer to the exploded parts diagram on pages 13 and 15 for item numbers.

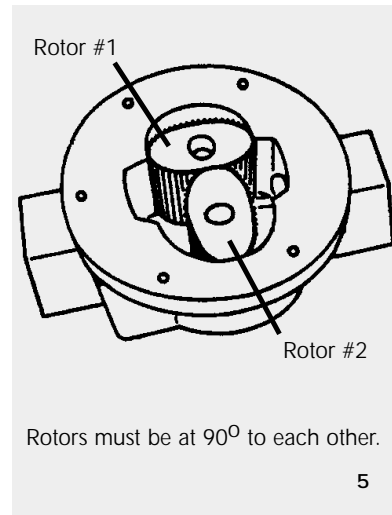
1a] Units with Pulse Caps; Undo the conduit connector, remove pulse

cap (item 9) and remove the wires from the pulse terminal board (item 5).

1b] Standard LC Display; Mark the display orientation with a marking pen, unscrew the four large screws (Item 30) on top of the LC Display. Carefully separate the LC Display from the plastic housing and disconnect the wires from the pulse terminal block.

between rotor one or rotor two.

- 3] Replace the rotors (Item 3) onto the shafts at 90° to each other (refer Fig. 5) and check their operation by turning either of the rotors. If the rotors are not in mesh correctly or do not move freely, remove one of the rotors and replace correctly at 90° to the other rotor. Re-check the operation of the rotors.



- 2] Remove the mounting adaptor plate and gasket (Item 14).

- 3] Loosen the six cap head screws (Item 7) that hold down the meter cap (Item 4), remove the screws, washers and lift off the cap.

- 4] Remove the o-ring (Item 2) from the o-ring groove in the meter cap (Item 4).

- 5] Remove rotors (Item 3).

#### Reassembly

- 1] Before reassembling check the condition of the rotors (replace if necessary).

- 2] Check that the smooth side of the rotors (not the plug side) is facing you when inserting the rotors, the smooth side of the rotor is the magnet side. There is no difference

- 4] Replace the o-ring (Item 2) into groove in the meter cap, if the o-ring has grown or is damaged in any way replace it with a new part.

- 5] Replace the meter cap making sure that the locating pin in the body lines up with the hole in the meter cap. Insert the cap head screws (Item 7) and tighten in the sequence 1, 4, 2, 5, 3, 6.

- 6] The replacement of cables and connectors are a reversal of the disassembly procedure, replace conduit fitting if required. When replacing the Standard LC Display, confirm that the orientation marks are aligned and tighten the screws.

- 7] Test the meter by turning the rotors with a finger or by applying very low

air pressure (no more than a good breath) to one end of the meter, before returning the meter to the line.

#### Pulse Circuit Board (PCB) Notes:

The pulse PCB (Item 5) is fitted with (A) two reed switches; (B) hall effect sensors; or (C) one reed switch and one hall effect sensor. The PCB board is fastened to the meter cap (Item 4) by two screws and stand off's. All care and caution should be taken when removing or handling the PCB as both the reed switch and hall effect sensor are fragile.

Individual reed switches or hall effect sensors are not available as individual replacement parts and are only available with the PCB (Item 5).

## Standard LC Display

This section of the instruction manual assists you in the operating of the Kobold Standard LC Display. Please take a few minutes to acquaint yourself with the information the follows.

#### Replace Battery

- 1] Remove the two large screws (Item 30) and the two small screws (Item 31) from the battery cover plate (Item 29).



2] Remove the battery cover plate (Item 29) and gasket (Item 28).

3] Remove battery, and clean any corrosions from the battery terminals (to protect terminals from corrosion or condensation coat the terminals with petroleum jelly).

4] Install the new battery.

5] Check gasket (Item 28) for damage (replace if required). Position gasket (Item 28) and cover plate (Item 29) correctly, insert the screws and tighten.

### Display Operation

All meter operations are reflected in the readout on the face of the meter. The readout contains three lines of information; refer to Fig. 7.

**Note: The calibration is preset and is permanently stored in the meter's computer.**

The meter will turn on automatically when the liquid flows through the meter. The meter can also be turned on manually by pressing and releasing the display button.

### Turn Off

The meter turns off automatically two minutes after flow stops. When the meter is off, the readout is blank.

### Batch Total

The resettable batch total indicates flow during a single use. This total can be reset by holding down the display button for three seconds until zeros appear. The batch total can be found by

pressing and releasing the display button until the bottom line displays "Total 2".

### Cumulative Total

The cumulative total is the total of all the liquid measured since the meter's power supply was connected. This total cannot be manually zeroed, but will zero when the battery has been removed, goes dead, or when it reaches the maximum value of 999,999.

The cumulative total can be found by pressing and releasing the display button until the bottom line displays "Total 1 Locked".

### Flow Rate

The flow rate is the rate the fluid is flowing through the meter. The flow rate setting can be found by pressing and releasing the display button until the bottom line displays "flow rate".

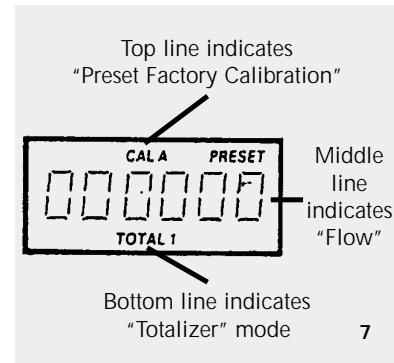
### Propeller

Any time liquid flows through the meter, a small propeller displays.

### Battery Replacement

Your meter is powered by a 9 volt lithium battery. (Replacement batteries; Lithium U9VL, Alkaline 522 or MN1604). If the meter's readout should become dim or blank, the battery should be replaced.

When the battery either falls or is disconnected the batch and cumulative totals return to zero. The factory calibration is retained in the meter's computer permanently and will not be affected by battery failure.



### Auxiliary Facilities

Connection of an external 12 volt DC power supply facility;

1] Remove the 4 large screws (Item 30) and remove the register from the coverplate.

2] Disconnect the internal battery.

3] Solder the external power leads to the terminals marked 'Ext 12V' on the registers printed circuit board.

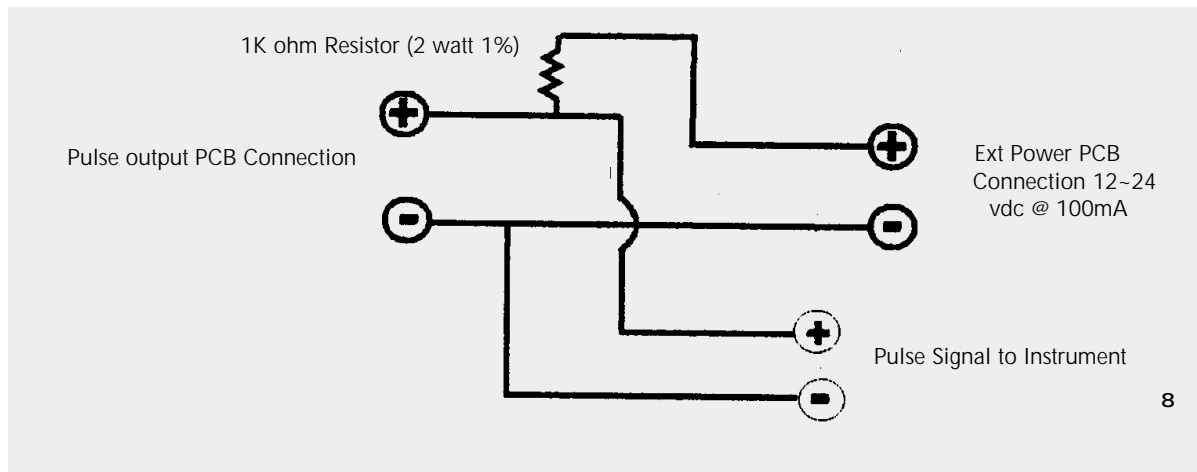
4] Re-assemble the register onto the coverplate, replace the 4 screws (Item 30) and screw firmly together.

### Connection of external pulse output

1] Remove the 4 large screws (Item 30) and remove the register coverplate.

2] Connect external signal lead. (Refer Fig. 8)

Pulse O/P and Ext Power are the connections located on the interface PCB, to utilize this output, a 1K resistor will need to be soldered between the + voltage of the external power input and the + of the pulse O/P. Pulse signal represents the output cabling to the receiving instrument.



## Meter Trouble Shooting

TROUBLE SHOOTING GUIDE		
TROUBLE	CAUSE	REMEDY
Fluid will not flow through meter	<ul style="list-style-type: none"> <li>a) Foreign matter blocking rotors</li> <li>b) Line strainer blocked</li> <li>c) Damaged rotors</li> <li>d) Meter connections over tightened</li> <li>e) Fluid is too viscous</li> </ul>	<ul style="list-style-type: none"> <li>a) Dismantle meter, clean rotors (Strainer must be fitted in line)</li> <li>b) Clean strainer</li> <li>c) Replace rotors (Strainer must be fitted in line)</li> <li>d) Re-adjust connections</li> <li>e) See specifications for maximum viscosity</li> </ul>
Reduced flow through the meter	<ul style="list-style-type: none"> <li>a) Strainer is partially blocked</li> <li>b) Fluid is too viscous</li> </ul>	<ul style="list-style-type: none"> <li>a) Clean strainer</li> <li>b) See specifications for maximum viscosity</li> </ul>
Meter reading inaccurate	<ul style="list-style-type: none"> <li>a) Fluid flow rate is too high or too low</li> <li>b) Fluid is too viscous</li> <li>c) Excess wear caused by incorrect installation</li> </ul>	<ul style="list-style-type: none"> <li>a) See "specifications" for minimum and maximum flow rates</li> <li>b) Bleed air from system</li> <li>c) Check meter body and rotors. Replace as required. Refer to installation instructions</li> </ul>
Meter not giving a pulse signal	<ul style="list-style-type: none"> <li>a) Faulty hall effect sensor</li> <li>b) Faulty reed switch</li> <li>c) Magnets failed</li> </ul>	<ul style="list-style-type: none"> <li>a) Replace PCB Board</li> <li>b) Replace PCB Board</li> <li>c) Replace magnets</li> </ul>
LCD Register not working	<ul style="list-style-type: none"> <li>a) Battery not connected properly</li> <li>b) Battery flat</li> <li>c) Faulty wiring connections</li> <li>d) Faulty LC display</li> <li>e) Faulty connection from LC display to Pulse PCB</li> </ul>	<ul style="list-style-type: none"> <li>a) Check battery connections</li> <li>b) Replace battery</li> <li>c) Check wiring for loose or faulty connections</li> <li>d) Replace LC display</li> <li>e) Check wiring connections</li> </ul>

# Meter Specifications

Meter Type	Pulse Output	Pulse with LC Display	Mechanical Display
<b>Flow Range (Liquids: 5 –1000 cP)</b>			
OMP-1204/1304	0.26 – 8 GPM		
OMP-1210/1310	1.6 – 32 GPM		
OMP-1240/1340	2.6 – 66 GPM		
OMP-1250/1350	4.0 – 92 GPM		
<b>Accuracy of Reading</b>	+/- 0.5%		+/- 1.0 %
<b>Maximum Pressure</b>	800 PSIG		500 PSIG
<b>Max. Media Temperature</b>	175°F (W/ Stainless Steel Gears: 250°F)		
<b>Pulses/ US Gallon</b>			
OMP-1204/1304	424		
OMP-1210/1310	136.3		
OMP-1240/1340	54.9		
OMP-1250/1350	25.4		

# KOBOLD

## 4~20mA Loop powered transmitter Supplementary instructions

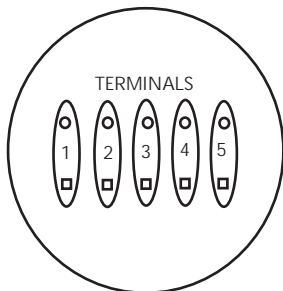


**IMPORTANT INFORMATION !**  
PLEASE READ CAREFULLY BEFORE USE

The following supplementary information concerns all meter models that are fitted with the 4~20mA DC Loop Powered Transmitter. The models relating to this information are:

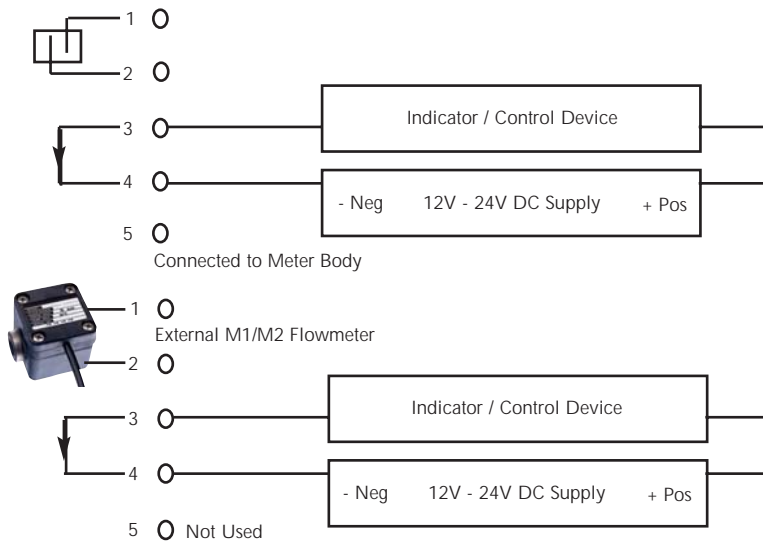
OMP- 1 / OMP- 2 / OMP-1204 through OMP-1350

### Reed Switch and Loop Powered Transmitter;



### Reed Switch OIP Specifications;

Voltage free Contacts  
Contact Rating 10VA  
Maximum Voltage 200VDC



**⚠ WARNING: IMPORTANT INFORMATION PLEASE READ BEFORE USE!**

1. Ensure +/- connections for loop powered transmitter are connected or circuit board may be damaged.
2. Connecting PIN 5 to earth wire may produce ground loop problems.

---

# Specifications

---

## BASIC SPECIFICATIONS

<b>Output</b>	A] 4~20mA analog signal - 2 wire loop powered
<b>Input</b>	Voltage free contact from reed switch
<b>Accuracy</b>	A] Calibration accuracy 0.5% of range B] Linearity 0.5 of range
<b>Dampening</b>	Average 1 to 2 seconds
<b>Temperature</b>	0 <sup>0</sup> - 70 <sup>0</sup> C
<b>Adjustments</b>	A] 4mA adjustment - 20 turn potentiometer B] Span - 20 turn potentiometer
<b>Supply Voltage</b>	12-24VDC

---



**CAUTION**

PLEASE READ THE FOLLOWING WARNINGS BEFORE ATTEMPTING  
INSTALLATION OF YOUR NEW DEVICE. FAILURE TO HEED THE  
INFORMATION HEREIN MAY RESULT IN EQUIPMENT FAILURE AND  
POSSIBLE SUBSEQUENT PERSONAL INJURY.

- **User's Responsibility for Safety:** KOBOLD manufactures a wide range of process sensors and technologies. While each of these technologies are designed to operate in a wide variety of applications, it is the user's responsibility to select a technology that is appropriate for the application, to install it properly, to perform tests of the installed system, and to maintain all components. The failure to do so could result in property damage or serious injury.
- **Proper Installation and Handling:** Use a proper thread sealant with all installations. Take care not to overtighten the inlet and outlet fittings. Ensure that piping at the inlet and outlet is properly supported. Always check for leaks prior to system start-up.
- **Wiring and Electrical:** The Specification and Electrical Connection sections provide the voltage and current limitations and the wiring for the various sensor types. The sensor electrical ratings should never be exceeded. Electrical wiring of the sensor should be performed in accordance with all applicable national, state and local codes.
- **Temperature and Pressure:** The Specification section provides values for the temperature and pressure limits. Operation outside the maximum limits for the specific model will cause damage to the unit and can potentially cause personal injury. Fluid should never be allowed to freeze inside the meter.
- **Material Compatibility:** Make sure that the model which you have selected is chemically compatible with the application liquids. While the meter is liquid and spray resistant when installed properly, it is not designed to be immersed.
- **Flammable, Explosive and Hazardous Applications:** This unit is not designed for installation and/or use in hazardous areas or locations.
- **Make a Fail-safe System:** Design a fail-safe system that accommodates the possibility of transmitter or power failure. In critical applications, KOBOLD recommends the use of redundant backup systems and alarms in addition to the primary system.

**USA**

KOBOLD Instruments  
Inc.  
1801 Parkway View  
Drive  
Pittsburgh, PA 15205  
Ph: 412-788-2830  
[www.koboldusa.com](http://www.koboldusa.com)

**Canada**

KOBOLD Instruments  
Canada Inc.  
9A Aviation  
Point Claire, QC H9R 4Z2  
Ph: 514-428-8090  
[www.koboldusa.com](http://www.koboldusa.com)

**Europe**

KOBOLD Messring GmbH  
Nordring 22-24  
D-65719 Hofheim/Taunus  
Ph: 49 6192 299 0  
[www.kobold.com](http://www.kobold.com)