# KDP SERIES
# MINIATURE ARMORED FLOWMETER & SWITCH

**Flow**
**Pressure**
**Level**
**Temperature**
measurement
monitoring
control

S1

- **Maximum Pressure 1885 PSIG**
- **Water Ranges 0.08-0.8 to 2.5-25 GPH**
- **Air Ranges 0.2-2.0 to 13-130 SCFH**
- **Accuracy ±4% of Full Scale**
- **Wetted Parts of Stainless Steel and PTFE**
- **Direct Reading Scale for Other Liquids and Gases Available**
- **Needle Valve Standard**


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Model:
KDP

## Features

- Maximum Pressure 1885 PSIG
- Water Ranges 0.08-0.8 to 2.5-25 GPH
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The KDP series armored flowmeter is an ideal choice for measuring and controlling low flows of liquids or gases in industrial applications where a rugged reliable design is required. The standard design has an all stainless steel body rated to 1885 PSIG and 300˚F. The mechanical indicator is actuated by a magnetic float so that no penetrations exist in the measuring tube, thus making the KDP series suitable for high pressure installations. The KDP series is available as a meter only or with up to two adjustable solid state proximity switches. An integral needle valve for precise flow control is standard. The KDP can be fitted with a flow regulator for precise automatic flow control under varying pressure conditions. The KDP is available with the standard air or water scales or a direct reading scale calibrated to the user's flow medium and operating conditions.

## Specifications

**Measuring Principle:** Variable Area
**Measuring Ranges**
**Water:** 0.08-0.8 to 2.5-25 GPH
**Air:** 0.2-2.0 to 13-130 SCFH
**Other liquids and gases:** Based on operating conditions
**Accuracy:** ± 4% of Full Scale
**Connection:** 1/4" NPT
**Maximum Pressure:** 1885 PSIG

**Process Temperature Range**
**Standard:** -112 to 302˚F

**Maximum Process Temperature for KDP with Switches**
**Ambient Temp. <100˚F:** Max. Temp. = 293˚F
**Ambient Temp. <120˚F:** Max. Temp. = 275˚F
**Ambient Temp. <140˚F:** Max. Temp. = 257˚F

**Wetted Materials**
**Fittings:** 318 C Stainless Steel
**Measuring Tube:** 316 Stainless Steel
**Valve:** 316 Stainless Steel
**Valve Seal:** PTFE

**Differential Pressure Regulators**
Constant differential pressure regulators are available as accessories for the KDP series flowmeters. These regulators maintain a constant flow rate under varying upstream or downstream pressure conditions. Type RE and NRE are inlet pressure regulators which maintain a constant flowrate for gases and liquids with variable flowmeter inlet pressure and constant outlet pressure. Type RA and NRA are outlet pressure regulators which maintain a constant flow rate with variable flowmeter outlet pressure and constant inlet pressure.

## Electrical Specifications

**Switches:** 1 or 2 with field adjustable setpoint
**Switch Type:** Solid state bistable proximity
**Switch Output:** NAMUR Per DIN19234, Intrinsically safe (use EX-3001 or EX-3002 relay sold separately)
**Electrical Conditions:** Cable gland PG 9
**Electrical Protection:** NEMA 4/IP 65

## KDP Ordering Information

**KDP** = Armored Flowmeter

**Options**

- **-42** = Flowmeter Only
- **-52** = Flowmeter with 1 Switch
- **-62** = Flowmeter with 2 Switches

**Range Codes**

| Liquids (GPH Water) | | Gases (SCFH Air) | | Max. Pressure Drop (PSI) |
|---|---|---|---|---|
| **-01G** | = 0.08-0.8 GPH | **-01S** | = 0.02-2.0 SCFH | 0.96 |
| **-02G** | = 0.13-1.3 GPH | **-02S** | = 0.55-5.5 SCFH | 0.28 |
| **-03G** | = 0.25-2.5 GPH | **-03S** | = 1.5-15 SCFH | 0.39 |
| **-04G** | = 0.65-6.5 GPH | **-04S** | = 3.0-30 SCFH | 0.80 |
| **-05G** | = 1.1-11 GPH | **-05S** | = 5.0-50 SCFH | 0.61 |
| **-06G** | = 1.6-16 GPH | **-06S** | = 8.0-80 SCFH | 1.23 |
| **-07G** | = 2.5-25 GPH | **-07S** | = 13-130 SCFH | 2.41 |

**Fitting Size**

- **-N2** = 1/4" NPT

**Options**

- **-0** = No options
- **-H** = Cleaned for oxygen service
- **-Y** = Calibrated scale for other liquids or compressed gases

**KDP -52 -03G -N2 -0** Sample KDP Ordering Code

## Constant Flow Regulators

| Model Number | Material | Max. flow rate Water** | Max. flow rate Air** | Min. required upstream pressure $p_1$ |
|---|---|---|---|---|
| **Upstream pressure controller** | | **l/h** | **l/h** | **$p_1$ in PSI** |
| RE-1000-R | Stainless Steel | 40 | 1000 | 0.5 |
| RE-1000-N | brass | 40 | 1000 | 0.5 |
| RE-4000-R | Stainless Steel | 100 | 3400 | 1 |
| RE-4000-N | brass | 100 | 3400 | 1 |
| NRE-800-R | Stainless Steel | | 800 | 0.2 |
| NRE-800-N | brass | | 800 | 0.2 |
| **Downstream pressure controller** | | **Air** l/h** | **Min. differential pressure * p in PSI** | |
| RA-1000-R | Stainless Steel | 1000 | 0.4 | |
| RA-1000-N | brass | 1000 | 0.4 | |
| RA-4000-R | Stainless Steel | 3400 | 0.8 | |
| RA-4000-N | brass | 3400 | 0.8 | |
| NRA-800-R | Stainless Steel | 800 | 0.15 | |
| NRA-800-N | brass | 800 | 0.15 | |

*Pressure difference between upstream and downstream pressure

**Reference conditions 68°F, 14.7 PSIA

**KDP Series Miniature Armored Flowmeter & Switch Application Guide**

Form # KDP-001
Rev. 08/18/01

**Customer Name:** _____

**Company Name:** _____

**Phone:** _____

**Fax:** _____

Quote #: _____ Date: _____ **Price:** _____ **Each**

Part Number: _____

Calibrated Measuring Range: _____

* To ensure fast order processing, please retain the completed quote form and send it along with your purchase order.

**Design Conditions**
Accurate design pressure and temperature are essential to ensure the flowmeter will be built to operate without damage. Please fill out accurately and completely.

**List Design Conditions**
**1. Pressure:** Maximum _____ PSIG
**2. Temperature:** Maximum _____ °F

**Calibration Conditions:** Accurate calibration conditions are required to ensure that the flowmeter will be factory calibrated to give accurate readings at the user's **normal operating conditions**. Please fill out accurately and completely.

**Calibration Conditions for Liquid Flow Applications**

**1. Type of Liquid:** _____
**2. Normal Operating Temperature:** _____ **°F**
**3. Viscosity at Normal Operating Temp:** _____
**4. Specific Gravity at Normal Operating Temp:** ____
**5. Desired Measuring Range and Units:** _____
**Note: Items 3 & 4 not required for water flow**

**Calibration Conditions for Gas Flow Applications**

**1. Type of Gas:** _____
**2. Normal Operating Temperature:** _____ **°F**
**3. Normal Pressure at Outlet Fitting:** _____ **PSIG**
**4. Specific Gravity (required for gas mixes only):** _____
**5. Desired Measuring Range and Units:** _____
**Note: The calibration pressure required is the pressure that the meter sees at its outlet fitting**

**Flowmeter Options**

**1. Measuring Tube Material:** ☐ **316 SS** ☐ **Other:** _____
**2. Desired Fitting:** ☐ **1/4" (standard)** ☐ **Other:** _____
**3. Fitting Type:** ☐ **NPT thread (standard)** ☐ **Other:** _____

**Other Options**

**1.** ☐ **1 NAMUR Flow Switch**
**2.** ☐ **2 NAMUR Flow Switches**
☐ **3. Oxygen Cleaning**
☐ **4. Other Options:** _____

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**Quoted By:** _____ **Phone:** _____ **Fax:** _____