



### I. Description

EKM-APGM-075-CF diaphragm gas meters are volumetric diaphragm gas meters ("diaphragm gas meters"), which are mainly used in measuring the volume of natural gas, gaseous propane, dry methane, and other non-corrosive gases with a working pressure of 5mbar~0.5bar. The gas meter has the following characteristics: wide measuring range, stable metrology, high sensitivity, good reliability, long operation life, anti-tampering ability and good corrosion resistance. The gas meters are in compliance with EN 1359:1998/A1:2006, 2014/32/EU(MID), OIML R137:2012 requirements.

### II. Functions and Characteristics

- 1.) 3/4" gas flow meter for measuring gas usage in cubic feet.
- 2.) Pulse output for remote reading (1 pulse per cubic foot)
- 3.) No power source required

### III. Construction

The gas meter consists of bracket gear transmission mechanism, upper and lower casing, measuring mechanism and mechanical counter. The diaphragm is made from high quality polyester fiber by special double-sided glue coating and re-vulcanization, and its flexural test can reach 3 million times without perforation; the valve seat and valve cover in the gas distribution system are molded with advanced formula of phenolic thermosetting plastic, which is wear-resistant, low water absorption, small friction coefficient and stable transmission system; Single rotary distributor valve is adopted to reduce transmission parts, reduce pressure loss and enhance reliability. The upper and lower casing is sealed with one-component adhesive sealant, and closed by a stainless steel clamp. Both airtightness and fire resistance can be achieved by this method. The transmission between the measuring group and the register is stainless steel sleeve segregated magnetic coupling transmission.

### IV. Operating Principle

The gas meter is driven by the pressure difference of the gas flowing inside the meter, and the distribution of the gas is controlled by the corresponding position of the valve and valve seat. The central body contains 2 gas measuring chambers. Each chamber is divided into 2 small chambers by a soft piece of diaphragm. The diaphragm is driven to move by the incoming gas. The rod is driven by the diaphragm movement and the rod rotates the valve. The valve serves to control the incoming and outgoing gas so that the gas meter works in a cycle. The crank gear is connected with a rod that drives the register to count. The total gas volume that has passed through the meter is displayed on the register.

### V. Technical Specifications

- 1.) Dimensions: 222mm tall x 209mm wide x 170mm deep
- 2.) No power source required
- 3.) Pulse Rate: 1 pulse per cubic foot
- 4.) Casing: Aluminum
- 5.) Connection Thread: NPT 3/4 Inch
- 6.) Inlet and outlet separation (to center): 130 mm
- 7.) Direction of inlet: Left in, right out
- 8.) Nominal flow-rate (Qn): 141.3 ft<sup>3</sup>/h
- 9.) Minimum flow-rate (Qmin): 1.41 ft<sup>3</sup>/hr
- 10.) Transitional Flow Rate (Qt): 21.2 ft<sup>3</sup>/hr
- 11.) Maximum flow-rate (Qmax): 212 ft<sup>3</sup>/hr
  - Natural Gas: 219,420 BTU/hr
  - Propane: 527,456 BTU/hr at 60°F (temperature dependent)
- 12.) Minimum Operating Pressure: 0.0735 PSIG
- 13.) Maximum Operating Pressure: 7.25 PSIG (21.75 PSIA)
- 14.) Pressure Loss: ≤ 0.03 psi
- 15.) Cyclic: 0.042 ft<sup>3</sup>/rev
- 16.) Permissible Error:
  - Qmin ≤ Q < 0.1 Qmax: ± 3%
  - 0.1 Qmax ≤ Q ≤ Qmax: ± 1.5%
- 17.) Min. Recording Reading: 0.02 ft<sup>3</sup>
- 18.) Max. Recording Reading: 9999999.98 ft<sup>3</sup>
- 19.) Readout is in cubic feet, with resolution to tenths
- 20.) Operating temperature: -13 to +131 °F
- 21.) Storage temperature: -4 to +140 °F
- 22.) Service life: ≥10 years
- 23.) Weight: 4.85 lbs., or 2.2 kg
- 24.) Type: G4A
- 25.) Meter Design Standards:
  - EN 1359:1998/A1:2006
  - 2014/32/EU(MID)
  - OIML R137:2012
- 26.) Index Cover: printed index cover of polycarbonate
- 27.) Surface Paint: polyester powder coat
- 28.) Wires: White is ground. Red is a tamper signal wire that is always closed unless a magnet is used to taper with the pulse output. Blue and Green are both pulse output wires that are normally closed but open once per cubic foot of gas that the meter reads.

### VI. Included

- 1.) Gas meter and pulse output module
- 2.) 2x 3/4" NPT threaded adapters
- 3.) 2x nuts to hold the 3/4" NPT threaded adapters onto the gas meter
- 4.) 2x 3/4" rubber gaskets

## VII. Installation and Operation

- The pipe and pipe fittings should be cleaned of metal particles, dust and water before installing gas meter.
- The gas meter should not be installed indoors or any other area which is sensitive to fire and explosion. It shall be at least 1.5 meters away from any open flames. The meter shall be installed in area which are resistance of rain, humidity, and long exposure in the sunshine.
- We recommend installing a sediment trap (a 'T' fitting with short capped vertical pipe going down) before the meter, to catch particulate mater that is traveling though the gas line, before it can enter the gas meter or your appliances.
- The gas meter shall be installed vertically with the inlet and outlet facing upwards. The gas flow should be left to right according to the arrow mark on the meter casing. The torque applied to the fitting nuts, during installation, should not exceed 80 Nm.
- We recommend installing a valve to block the incoming gas flow before the incoming connection to the meter. Air-tightness should be checked after installation. The check should not be performed with fire present. Incoming pressure of the meter should not exceed the maximum pressure specification.
- When the gas meter first goes into operation, the outgoing valve should be opened first. Then the incoming valve should be opened. This order of operations will serve to avoid a rapid increase in pressure which could damage the construction of the meter. The flow rate of the meter should not exceed maximum flow rate specification of the meter. This gas meter cannot be used to measure oxygen or acetylene.

## VIII. Pulse Output

- 1.) Use in conjunction with our v.4/v.5 Omnimeters for remote metering applications.
- 2.) The v.4 and v.5 Omnimeters have ports for three separate pulse inputs (ports 11, 12 and 13). All of the pulse input devices share a common ground wire (Port 14). The wires can be up to 10,000 ft long.
- 3.) Connect the blue or green wire to either port 11, 12, or 13. Connect the white wire to port 14.
- 4.) The easiest way to power the Omnimeter Pulse v.4 is with 110v AC. Connect a hot leg into port 7 & the neutral into port 10. For more information on how to read this meter remotely, please refer to the various communication devices that we offer on our website.

## IX. Maintenance

- The gas meter cannot be cleaned with strong alkali, petrol or alcohol to clean the surface. Washing detergent should be used for cleaning of the meter.
- No special maintenance is needed under normal working circumstances. The incoming valve should be closed immediately if a gas meter failure occurs, and the corresponding professional services should be notified to fix or replace the meter. Checking and repairing the gas meter should be carried out by professional personnel.

## X. Transportation and Storage

- The gas meter is a high metrology measuring instrument, therefore loading and unloading of the gas meter should be done with care. The gas meter should remain vertical during transportation and storage.
- The gas meter should be stored in a dry environment with a temperature range of -13°F~+140°F. The anti-dust cover should not be removed before installation, to avoid particles falling into the meter. The seals cannot be damaged during transportation, storage, installation and operation.

## XI. After Sale Service

The gas meter will be repaired or replaced free of charge within 24 months of the original sale, provided that the problem is due to the meter itself, and that the Installer and operator followed the instructions provided on this spec sheet, and that the meter seal is not damaged. The customer is responsible for any problem caused by incorrect installation and/or use of the gas meter. In this case, EKM may be able to provide meter parts to aid in repairing the meter.

Dear Customer:

When this product reaches its economic life, please recycle the product or the components. Meanwhile please apply suitable treatment for non-recyclable material as well. Thank you for your cooperation and support.

### Dimensions

Model	H	W	D	E	A
EKM-APGM-075-CF	222mm	209mm	73mm	170mm	130mm

